Institution: University of Winchester

Unit of Assessment: 24 Sport and Exercise Science, Tourism and Leisure

1. Unit context and structure, research and impact strategy

REF2021 is the University of Winchester's inaugural submission to UoA24 and includes 10 Category A submitted staff (9.2 FTE). The configuration of UoA24 includes one member of staff who was entered in to REF2014 (**Anderson*,** previously UoA23), a critical mass of staff from the School of Sport, Health and Community (**Anderson, Batey, Cheetham, Cotterill, Faulkner, Holder, Jobson, Smith**), and colleagues based in the Faculty of Business, Law and Digital Technologies (BLDT; **Bah, Mhanna**). The University's creation of two new Faculties (Health and Wellbeing [HWB] and BLDT) in 2019 led to new programmes and research investment in line with the University's new Strategic Vision that focuses on Sustainability and Social Justice. Through an emerging research culture, an increase in staff with recognised research responsibility, and growth in postgraduate (PG) programmes, the UoA has seen essential expansion and has substantial potential to make significant progress in future REF assessments.

The principal contributor to UoA24 has been the Department of Sport, Exercise and Health from the School of Sport, Health and Community. This Department employs 15 academic staff (>0.2FTE), three technical staff, one research assistant, five Hourly Paid Lecturers (HPL) and two administrators, working together in a research-led environment. Capacity has increased by recruiting new staff (Section 2.1) and developing existing staff in UoA24 (Section 2.2). Through an exciting period of growth and development, new undergraduate (UG) programmes (e.g., BSc [Hons] Strength and Conditioning; BSc [Hons] Sport and Exercise Psychology; BSc [Hons] Sport Coaching and Psychology) have been validated during the REF assessment period to complement our traditional suite of offerings (BSc [Hons] Sport and Exercise Science; BSc [Hons] Sport Coaching; BSc [Hons] Sport Management). The Department has also validated a Foundation year, three taught PG programmes (MSc in Applied Sport and Exercise Science, 2014 to 2018; MSc in Applied Sport Psychology, 2015 to present; MRes in Sport and Exercise, 2015 to present), one taught PG programme due to commence in September 2021 (MRes in Health Science), provides MPhil/PhD training for PG research (PGR) students, a Sport and Exercise Consultancy Unit (SECU) and a Sport and Exercise Research Centre (SERC; convened by **Smith**). The unit is also supported by strategic Visiting Professor (VP) appointments (Section 2.5).

1.1 UoA24 Research Priorities for REF2021

In recognising the Unit's developmental lifespan, UoA24's strategic research priorities were firmly underpinned by the University's 2015-2020 Research and Knowledge Exchange (RKE) strategy. Building on existing strengths, while also improving performance across key areas, the UoA strategy was developed to demonstrate a visible, quality-assured research standing in the academic community, and to maximise the impact of the research by understanding, influencing and responding to external research priorities. The research priorities during the REF assessment period were to:

a. Submit research outputs of world-leading or internationally excellent quality to REF2021
b. Increase the proportion of full-time academic staff engaged in RKE, providing measurable outputs (minimum of one internationally excellent peer-reviewed output per year)
c. Develop research-informed teaching
d. Ensure that procedures for academic staff appointment consider a candidate's RKE track record as key criterion
e. Implement biennial preparatory REF exercises

f. Review annual staff RKE reports to identify current and emerging areas of research excellence and to inform institutional strategic planning
g. Submit Impact Case Studies (ICS) with outstanding impacts

The UoA has increased RKE activities through staffing additions (priority 1.1b and 1.1d; Section 2.1) and demonstrated evidence of world-leading/internationally excellent quality research through our REF2021 preparatory exercise (priority 1.1a and 1.1e; Section 1.3). To facilitate progress over the REF assessment period, a UoA Working Group (WG) was established in 2015.

1.2 UoA24 Working Group

Membership of the UoA WG includes the UoA co-leads (**Faulkner, Smith**), and all staff on Teaching and Research and/or Teaching with Enhanced Responsibility for Research role profiles eligible for entry into UoA24. The group meets a minimum of twice a year to provide strategic steer to the Unit by providing oversight to the use of devolved Quality-Related (QR) research funding, the dissemination of research papers to external peer reviewers for the UoA's REF2021 preparatory exercise, activities aligned with ICS, development of the research environment and awareness of published research outputs.

1.3 Sport and Exercise Research Centre (SERC)

The SERC was established in 2015 as a dynamic, cross Faculty, multi-disciplinary hub of leading and emerging academics and researchers from the University (priority 1.1b). SERC's mission, through research collaboration (see Section 4), is to identify and solve pertinent sport, health and wellbeing challenges, locally, nationally and globally through internationally excellent research. This is facilitated by building on existing areas of strength, namely Sport and Exercise Physiology (**Faulkner, Jobson**), Applied Sport Psychology (**Batey, Cotterill, Holder, Smith**), Sociology of Sport and Exercise (**Anderson, Batey, Smith**), Coaching Science (**Cheetham, Cotterill, Holder, Smith**) and Physical Activity (**Anderson, Cotterill, Faulkner, Jobson, Smith)**.

The objectives of SERC strongly align with the University's 2015-2020 Strategic Vision to educate and advance knowledge, and the University's current 2020-2030 Strategic Vision to deliver transformative research and innovation (see REF5a, 1.1; 2.1). The University's aim of "Promoting the health and wellbeing of our communities and environment" has been spearheaded by SERC and the School of Sport, Health and Community. In addition to working with colleagues from across the University and at other institutions nationally and internationally, members collaborate with public and private stakeholders, industry groups, policy makers and funding agencies to improve our understanding and knowledge of the impact of sport, exercise and active leisure on improving performance, health and wellbeing across the lifespan.

SERC has three '*Principal Areas of Research*' that embrace the inter-disciplinary nature of the UoA and the research strengths of staff. These are:

i. Physical Activity, Health and Wellbeing
ii. Sport Performance
iii. Inclusivity and Safety in Sport

1.3.1 Physical Activity, Health and Wellbeing

Research within the *Physical Activity, Health and Wellbeing* group builds on the University's overarching aim to promote health and wellbeing in the community. A key appointment to this research group (**Faulkner**) has explored the effect of physical activity and/or exercise in improving physiological and psychosocial health outcomes in a variety of clinical population groups, including individuals with Stroke or Transient Ischaemic Attack (TIA), Spinal Cord Injury (SCI; **Faulkner** et

al., *J Spinal Cord Med*, 2019), Crohn's Disease (Tew… **Faulkner** et al., *BMC Gastro*, 2019), as well as individuals requiring high tibial osteotomy (HTO) surgery (Belsey... **Jobson, Faulkner,** Wilson, *Am J Sports Med*, 2020) and overweight/obese paediatric populations (McNarry… **Faulkner**, *Appl. Physiol. Nutr. Metab*, 2015). With stroke/TIA populations, research has focused on the effect of acute (laboratory-based) and chronic exercise programmes on cardiovascular disease risk factors and central/peripheral haemodynamic parameters (e.g., blood pressure, arterial stiffness) (**Faulkner** et al.**,** *J Hypertens*, 2014; **Faulkner** et al., *J Hum Hypertens*, 2017), executive function (**Faulkner** et al.,, *Psychophys*, 2017) and clinical outcomes, including mortality rates, recurrent strokes, hospitalisations and cost-effectiveness (**Faulkner** et al., *Trans Stroke Res*, 2017). Research studies have been embedded in both community (**Faulkner** et al., 2014, 2017; Wright... **Jobson, Faulkner**, *Clin Rehab,* 2018) and hospital (NHS) environments (Mitchelmore... **Jobson, Faulkner,** Plos One, 2019). This programme of research led to the creation of the **HELP** (**H**ealth **E**nhancing **L**ifestyle **P**rogramme) **Hampshire Stroke Clinic** (www.helphampshire.co.uk; HELP Hampshire Stroke Clinic - University of Winchester); a community-based exercise and education programme that supports newly diagnosed stroke/TIA patients referred from Hampshire Hospitals NHS Foundation Trust (HHFT) and from GP practices (priority 1.1g; See Ref3). **Faulkner** has also led a global investigation into the effect of the novel coronavirus (COVID19) on physical activity, mental health and wellbeing (**Faulkner** et al., *J Sci Med Sports*, 2020).

The research group has had two doctoral completions (Mitchelmore & Brock; 2015-2019), both of which were successfully awarded University Research Scholarships (Total: £108,318). For example, Mitchelmore assessed central haemodynamics and the efficacy of acute and chronic physical activity interventions in older adults and stroke patients (Director of Studies [DoS] **Faulkner**, **Jobson**). Belsey's soon-to-be completed PhD into physical activity after HTO and knee arthroplasty was externally funded by RTI Surgical, NewClip Technics and Ossur (Total: £88,000; DoS **Jobson, Faulkner**, Wilson [VP]). There are five further ongoing doctoral research studies from this priority including: the effect of robotic technology on functional outcomes in stroke (DoS **Faulkner, Jobson**); arterial stiffness and stroke (DoS **Faulkner**); effect of nature-based physical activity interventions on young people's health (University Research Scholarship, £54,159); physical exercise as a treatment for post-traumatic stress disorder (DoS **Anderson**); community-based health literacy for socially disadvantaged parents (DoS **Faulkner**, NIHR ARC Wessex Scholarship; £55,000), a collaboration with colleagues from the University's Healthy Lives Research Group (UoA4), University of Southampton and University Hospital Southampton.

Research findings from this theme has contributed to research-informed teaching (priority 1.1c) in both UG (e.g., Clinical Physiology; Clinical Exercise Prescription) and PG programmes (Scientific Research Review). Our research evidence contributes to seminars, workshops and practical laboratory sessions in these modules.

1.3.2 Sport Performance

Our research capacity within our *Sport Performance* group has increased during the REF census period by key appointments (**Holder, Smith**), and the work of this group builds on the increasing applied expertise of staff, and the focus on research-informed teaching across the academic provision. This area of research has expanded to examine key issues in coaching, leadership, and applied practice. Research projects focus on the development of leadership theory (Figgins, **Smith,** et al., *Scan J Sport Sc*, 2019) and investigations into effective leadership practice (**Smith** et al., *Sports Psych*, 2017; **Cotterill** et al., *J Appl Sport Psych*, 2020). Research has also focussed on captaincy in sport, examining the experiences of captains in elite sport (**Cotterill & Cheetham**, *Eur J Sport Sc*, 2017), challenges faced by elite captains (**Smith** et al., *J App Sport Psych*),

attributes of the captain (Fransen… **Cotterill**, et al. *PLoS One*, 2020), and the effective communication of elite leaders including captains (**Smith** et al., *Int J Sport Sc Coach*, 2017). Research investigating the effective psychosocial behaviours of strength and conditioning coaches (Szedlak, **Smith**, et al., *Sport Psych*, 2017) and how these findings can be best disseminated to novice coaches (Szedlak, **Smith**, et al., *Qual Res Sport Ex Health*, 2020) has been used to inform UKSCA (UK Strength and Conditioning Association) curriculum development. Research in applied sport psychology has examined the use of observation by experienced practitioners (**Holder** et al., *Sport Ex Perf Psych*, 2016), and the experiences of trainee practitioners when using observation (Martin … & **Holder**, *Sport Psych*, 2016). One doctorate in this area included an exploration of the competitive team sport training environment (2020; DoS **Cotterill**) and another doctorate examined training monitoring and performance modelling in elite athletes (2020; DoS **Jobson**).

At least four doctorates are expected to complete in the next six years from this research group: mindfulness for elite injured athletes (DoS **Holder**); turning points/momentum in tennis (DoS **Smith**); intra-individual movement variability in cycling (DoS **Jobson**); an exploration of Team Psychological Safety (DoS **Holder**).

Research findings from this group have contributed to research-informed teaching within the following modules: Applied Biomechanics, Qualitative Research in Sport and Exercise Psychology, Applied Sport Psychology and Sport Psychology for Coaches, among others.

1.3.3 Inclusivity and Safety in Sport

Research in the *Inclusivity and Safety in Sport* group focusses on issues in sport surrounding masculinity, sexuality, gender, inclusivity, prejudice and safety in sport. Members of this group are internationally recognised for their work on changing masculinities in sport, with texts exploring these issues (**Anderson**, 2014), and research examining masculinity among elite young footballers (Roberts, **Anderson**, et al., *Brit J Sociology*, 2017). Other work examining gender, sexuality and inclusivity has explored the experiences of openly lesbian team sport athletes (**Anderson** et al., *Int Rev Sociology Sport*, 2015), inclusive men's rugby in the UK (Muir, Parry, & **Anderson**, *J Gender Studies*, 2020), organisational culture lag on marriage equality (Parry… & **Anderson**, *Brit J Sociology*, 2020) and an examination of sport media framing of an elite athlete coming out and playing in the NBA (Kian, **Anderson**, et al., *Sexualities*, 2015). Research on prejudice in sport has considered the influence of gender segregation on occupational discrimination in sport-based employment (Joseph & **Anderson,** *J Gender Studies*, 2016).

Editorials have been published challenging aspects concerning safety in sport, for example, considering the prevention of concussion (Batten... & **Anderson**, *Br J Sport Med*, 2016) and the evidence supporting removing tackling from school rugby (White, Batten... **Anderson,** et al., *Br J Sport Med*, 2018). Staff are encouraged to participate in contemporary debates, with academic dissemination of work regularly accompanied by engagement with the mainstream media. For example, staff have responded nimbly to issues such as head trauma in sport, and the impact of COVID-19 on professional athletes, by engaging with non-traditional outputs such as '*The Conversation'* (**Anderson**, **Batey, Smith**). Staff are encouraged to engage with media as a means of demonstrating impact, and are provided with a variety of support and training mechanisms to do so in an effective manner (Section 2.2).

At least three doctorates examining issues in this research centre group are expected in the next six years: an exploration of competitive road cycling with reference to masculinity; risk and concussive injuries; organisational culture and existent masculinities within the British horseracing

industry; and exploring risks faced from head impacts on the behaviour of fight sports athletes (all DoS **Anderson**).

Research from this group has contributed to research-informed teaching in modules such as Sport Matters, Psychology of Injury, Mental Health and Wellbeing, and Social Psychology.

1.4 Supporting a culture of research integrity

The UoA delivers research that is ethical, and conducted in accordance with appropriate institutional, regulatory, clinical and disciplinary frameworks. Members of this UoA have led Department (**Anderson** 2014-2015; **Faulkner** 2015-2020) and Faculty (**Faulkner** 2015-2020) ethics committees, and contributed to the wider University Research Ethics Committee (**Faulkner** 2015-2020).

1.5 Future Priorities and Opportunities

The priorities of SERC over the next six years are to build on the work within these three principal areas (Section 1.3.1 to 1.3.3) and to conduct high quality research underpinned by excellent science. These priorities will be delivered through collaborative work actioned at three levels: within the School, through collaborations with the Faculty of Health and Wellbeing's School of Health and Care Professions and other Faculties across the University, and via external collaboration with national and international experts.

Underpinning the growth of SERC and the UoA is the need for high-quality UG and PG programmes. From 2021/22 the School will deliver a BSc (Hons) in Nutrition and Dietetics and a new MRes in Health Science. Both programmes will provide new staffing appointments to the School, whereby staff research expertise will help inform the delivery of these courses. Two new Senior Lecturers were appointed in 2019 (Marino, Parsons). Marino, for example, is a clinical academic dietitian working in the paediatric intensive care unit and cardiology services at University Hospital Southampton, and has a National Institute of Healthcare Research (NIHR) Integrated Clinical Academic Lectureship. With the School of Health and Care Professions now delivering BSc (Hons) programmes in Physiotherapy and Nursing, with additional UG and PG Allied Health Profession programmes due to be validated in the coming years (e.g., Occupational Therapy), exciting multi-disciplinary research collaborations will further strengthen our Physical Activity, Health and Wellbeing SERC priority (see Section 1.3.1 and 1.6a). At an institutional level, there is substantial potential for collaboration with the Department of Psychology and in particular their '*Healthy Lives*' Research Group.

We will build on existing links to develop partnerships that will help influence policy and practice. At a regional level, collaborators will include HHFT, NIHR Applied Research Collaboration (ARC) Wessex, Wessex Academic Health Science Network and Health Education England. For example, the formation of the 'Hampshire Collaboration for Health Research and Education' between the University and HHFT will provide the platform for new innovative research studies to be formulated, conducted and disseminated. Furthermore, since the REF2021 census date, **Faulkner** (co-investigator) has been collaborating on an NIHR ARC Wessex funded study investigating the *'Development of policy recommendations to reduce the impact of COVID-19 on physical activity and mental health in individuals with multimorbidity: a mixed methods study'* (see Section 1.6c). The Unit and SERC also has substantial potential to have a global impact (see Section 1.6b). As introduced in Section 1.3.3, there is currently a large debate around concussion and head injury in sport, and we are well placed to conduct research in this area, particularly around the experiences of family members of athletes. To investigate these experiences, members of the UoA (**Anderson, Smith**) attended the Concussion Legacy Foundation (CLF)

conference (February, 2020; Orlando, USA). Qualitative research data was collected from individuals whereby the death of an athlete family member has been linked with traumatic head injuries sustained from playing sport. With international links with the CLF, and national collaborations with the equivalent organisation in the UK, these partnerships will enhance our ability to produce high-quality research into understanding the psychosocial impact of head injuries on family members. We also aim to enhance our existing PG capacity in this area, and ultimately, to conduct and disseminate research that will help support family members as well as inform policy concerning safe participation in sport.

1.6 Future Research and Impact Strategy

Based on the opportunities identified in Section 1.5, and the University's commitment to delivering transformative research and innovation as presented in: i) The University's Strategic Vision 2030, ii) the University's RKE strategy 2020-2030, and, in particular, iii) the Faculty of Health and Wellbeing's RKE Strategy 2020-2030, the UoA is well placed to meet, and support, the following priorities:

a) ***Deliver world-leading and internationally excellent research***
In UoA24 we will aim to: i) develop an academic culture that facilitates the production of high-quality research, ii) maximise the quality of REF submissions, iii) increase inter- and multi-disciplinary research collaboration, iv) increase visibility of research processes and support staff development, and v) enhance the national standing of SERC.

b) ***Create demonstrative research impact on a global scale***.
In UoA24 we will aim to: i) ensure research is created with the intention of demonstrating local/national/international impact, and ii) increase the accessibility of our outputs to facilitate greater reach as a potential pathway to impact. For example, recent research into physical activity, mental health and wellbeing during the COVID-19 pandemic will be disseminated in *'Research Features'* in 2021, a platform that enables scientific research to be presented and visible to a broader audience.

c) ***Increase external research income***.
In UoA24 we will aim to: i) increase external research income from a range of sources, including research councils, charities and other research income streams, ii) increase the number of externally funded PhD studentships. For example, since the REF2021 census date we have already been successful in being awarded an externally funded PhD studentship from NIHR ARC Wessex.

d) ***Have a growing and thriving community of research students.***
We will: i) enhance our PG experience, and ii) support the delivery of a strong research training programme. Members of the UoA are currently supervising 21 PhD students. We are currently providing opportunities for PG students to attend and contribute to SERC and Faculty Health and Wellbeing seminar series, and inter-disciplinary journal clubs.

With the Faculty of Health and Wellbeing presenting ambitions to develop new disciplines of research and bespoke research centres (e.g., Chronic Traumatic Encephalopathy, Orthopaedics, Global Health), UoA24 can be aligned with exciting new areas of research which will be influential, impactful and sustainable going forward.

2. People

2.1 Staffing and recruitment policy

A strategic goal of the University during this REF assessment period was to expand the expertise that could be eligible for a UoA24 REF2021 submission. UoA24 is a new submission for the University, and only incorporates one FTE staff who was submitted to REF2014 (**Anderson**). The Unit's staffing strategy since 2014 has therefore focused on the recruitment of staff with international research reputations and/or exceptional research promise.
Research and Knowledge Exchange is an important component of the recruitment process, with new senior academic appointments expecting to have a 2* or 3* research profile, appropriate to their stage of career development (priority 1.1b and 1.1d). As there was growth in student numbers at both UG and PG taught levels during the REF assessment period (see Section 1), Senior Lecturer appointments in Physiology (**Faulkner** 2015) and Psychology (**Holder,** 2017**; Smith**, 2018) were approved. These appointments have increased the Units capability to lead doctoral supervision from two (**Cotterill, Jobson**) to six (**Anderson, Faulkner, Holder, Smith**) during the REF2021 assessment period (Section 1.3 and 4.3). Contributions to UoA24 have also been made via senior lecturer appointments in the Faculty of BLDT within Computational Biomechanics (**Bah,** 2019) and within Event Management (**Mhanna,** 2017).

2.2 Staff Development

We foster a supportive research environment to nurture confident but self-critical researchers. Research mentoring is available to all staff pursuing a career in research at all stages of their careers. The University supports staff development by allocating time for mentoring by Readers and Professors in the workload allocation model (Section 2.4). Within the School of Sport, Health and Community, and the wider UoA, mentors are encouraged to provide advice and assistance to mentees on a regular basis for the purposes of support, setting individual career development goals, review and reflection. Mentors within UoA24 often comment on manuscripts in preparation, offer feedback on conference presentations, and help with public engagement activities. In addition to our body of academic staff, we seek to augment our expertise through the academic expertise of our VP's (Section 2.5) who help mentor and support the development of both academic staff and PGR students. Staff participate in an annual Individual Review and Development Scheme (IRDS) to identify training and support needs that will help facilitate the successful achievement of research within UoA24, and to ascertain how the proposed research activities align with the strategic objectives of the University, RKE Centre and Faculty (see REF5a, 3.4).

The SERC and UoA WG have also established processes that will assist with mentoring and supporting the development of ECR's in preparation for future REF assessments. To encourage ECR and staff who have a Teaching and Scholarship role profile (ineligible for inclusion into REF2021), various inter- and multi-disciplinary research development activities are presented to foster an emerging and impactful research culture. The UoA is actively involved in facilitating, chairing (**Faulkner, Jobson**) and participating in the University's Health and Wellbeing Research Group Seminar Series, a research programme which encourages staff, PGR and external stakeholders to engage in diverse and informative health-focused presentations which focus on research methodology, research implications and policy impact. At an institutional and Faculty level, a wide-range of additional development opportunities are available to staff, ECR and PGR students, including sessions on: Repository and open access publishing; Research ethics; Disseminating research in alternative outlets (e.g., The Conversation); Research Professional; and Grant writing. The University's RKE Centre has supported our UoA by facilitating the annual Research and Engagement conference, providing monthly supervisor development and enhancement sessions, and delivering the University's bi-annual PGR student symposium. Members of UoA24 (**Bah, Batey, Smith**) have actively engaged in the University's *'VC's Futures'* programme; a career development opportunity whereby academic staff have the opportunity to

learn more about the governance of the University, explore opportunities to shape the University's strategic direction, provide training in media, research and impact, and build a sense of community with colleagues from other Faculties and Departments.

2.3 Promotion

Research success (e.g., outputs, external funding success) and achieving impact are recognised and rewarded through the allocation of additional time for research in the workload model. During this REF assessment period, individuals who demonstrated an international research profile over a period of time were promoted from Lecturer to Senior Lecturer (**Bah**), Senior Lecturer to Reader (**Cotterill, Faulkner**), and from Reader to Professor (**Jobson**). This process provides Readers and Professors with an additional 50 and 75 hours p.a., respectively, for research-related activities. Two members of the UoA were also promoted from Senior Lecturer to Senior Fellow (**Batey, Cheetham**). The combination of recruitment at senior level and the development and promotion of existing staff has increased research mentoring and supervision capacity (Section 2.2) as well as further strategic development and management of research.

2.4 Workload Model

A large proportion of UoA24 members have important roles and responsibilities at Institutional, Faculty and School level, including: Faculty Head of Research and Knowledge Exchange (**Faulkner**); Faculty Head of Academic Development (**Batey**); Faculty PGR Student Lead (**Faulkner**); Faculty representative on University Research Ethics Committee (**Faulkner**); Programme Leader (**Faulkner**, **Holder**; MRes Sport & Exercise and MSc in Applied Sport Psychology, respectively); Research Centre Lead (**Smith**), and UoA co-leads (**Faulkner, Smith**). Readers (**Cotterill Faulkner**) and Professors (**Anderson, Jobson**) are provided additional time for research-activities and mentoring responsibilities (Section 2.3), and are encouraged to collaborate with junior colleagues for research outputs and funding bids.

The University's role profile scheme outlined in REF5a (1.2) includes a workload model allocates teaching and administration duties in a manner that recognises and enables research contribution. In UoA24, 3.2 FTE Teaching with Enhanced Responsibility for Research role profile (**Anderson, Cotterill, Faulkner, Jobson**), and 6.0 FTE are Teaching and Research role profile (**Batey, Bah, Cheetham, Holder, Mhanna, Smith**). Early-career staff have obtained their doctorates (e.g., **Batey**), increased their peer-reviewed outputs, participated in funding bids, and joined PGR supervisory teams during this REF cycle. Some of our current part-time PGR students (Ryan-Stewart, Whittle, Wright) work full-time (1.0 FTE) within the School of Sport, Health and Community and have protected doctoral research time (100 hours) on their workload model.

2.5 Visiting Professors (VP)

The Unit is supported by the strategic appointment of four VP's: **Collins** [2016-2018), **Kerawala** [2020-present], **Muir** (2017) and **Wilson** [2016-2019]). Collins brought significant expertise in mentoring and supporting the development of both academic staff and PGR students. **Wilson** was an internationally-recognised consultant knee surgeon who mentored Belsey's PhD into physical activity after HTO and knee arthroplasty (Section 1.3.1). **Muir** collaborated with **Anderson** on how sexual/gender identity impacts men and women and their participation in sport (**Muir, Anderson** et al. *Eur J Sp Soc*, 2020). **Kerawala** is a consultant Maxillofacial/Head and Neck Surgeon at the Royal Marsden Hospital and President of the British Association of Head and Neck Oncologists. Kerawala is leading the assessment of an online exercise and nutritional programme for head and neck oncology patients.

2.6 Equality, diversity and inclusivity (EDI)

The University of Winchester is committed to fostering an inclusive culture which promotes equality, values diversity and maintains a working, learning and social environment in which the rights and dignity of all its staff and students are respected. As a small university, strategy in relation to supporting and promoting EDI is centralised and covers all aspects of the institution's operations. The UoA is committed to the University's values in supporting and promoting EDI in research careers (e.g., see Section 2.3). For example, **Anderson** Chaired the EDI Working Group during the REF assessment period, colleagues (**Batey, Cotterill, Faulkner, Holder, Jobson**) sit on interview panels which implement the University's recruitment policies on EDI, while UoA members have protected EDI characteristics (e.g., parents, spectrum LGBTQ+, race and ethnic diversity). As a relatively small UoA, data which potentially identify colleagues with Protected Characteristics cannot be included in this statement. However, moving forwards, we will be working closely with HR and the RKE Centre to address any EDI issues arising from the REF Equality Impact Assessments.

In compliance with the REF 2021 Code of Practice, all members of the UoA WG took part in bespoke mandatory training in conscious and unconscious bias in relation to REF. This was led by the Director of Equalities and Staff Development and was in addition to online training in Equality and Diversity which all staff are required to undertake. Researchers from the UoA act with honesty, integrity and in a transparent manner, respecting the dignity, rights and values of others, guided by relevant legislation and accepted discipline-related ethical and professional standards. Furthermore, and in accordance with the University's Code of Practice, non-category A staff and PGR students from our School are actively encouraged to engage in research activities associated with the UoA and SERC (e.g., seminar series).

2.7 Research students and PhD completions

Postgraduate research (PGR) administration is carried out by the University's PGR team in the RKE Centre which monitors and oversees the admission, training, supervision and progression of PGR students (Ref 5a). Competitive recruitment is followed by highly structured supervision arrangements. The PGR School is responsible for the delivery of transferable skills and employability training. Members of UoA24 with supervisory responsibilities are expected to meet with their PhD students a minimum of three times each year. Unit supervisors rigorously scrutinise students' research projects for viability, with all projects requiring ethical approval from either the University or Faculty Research Ethics Committee. To ensure effective supervision, all UoA24 doctoral supervisors must engage in two annual training sessions to maintain supervisory status.

UoA24 supervisors encourage PhD students to participate in the PGR student-organised symposia, providing PGR students the opportunity to present research proposals and research findings to their peers in the PG community. PGR students associated with SERC and the UoA have access to teaching opportunities once they have successfully completed a PG Cert in Learning and Teaching. For example, in the School of Sport, Health and Community, PhD students have been appointed as Hourly Paid Lecturers (Belsey, Brock, Demirel, Gennings, Mitchelmore, Paine) to support the expansion of taught programmes. To further support PGR students, there are also a number of additional PGR training opportunities delivered throughout each year including sessions/workshops on: Writing a literary review; Qualitative research methodology and practice; Research dissemination; Interview skills; Writing for publications.

Students are also encouraged to participate and network nationally in their subject area, to enable attendance at conferences, seminars, workshops etc., An annual fund has supported PGR students presenting at the British Association for Sport and Exercise Sciences (BASES) student and annual conference (Ryan-Stewart, Paine, Wright, 2019), European College of Sport Sciences

(Mitchelmore, Ryan-Stewart, 2018) and UK Stroke Forum (Mitchelmore, 2018). PGR students are an integral part of our research culture and can contribute to various Faculty committees as PG representatives, including the Faculty's RKE Committee and the University's Research Degrees Quality Committee. These opportunities provide PGR students with a unique insight into University research planning and provides students with a platform for their student voice.

At the start of this REF cycle (2014) only three members of staff (**Anderson, Cotterill, Jobson**) working within the School had completed their doctorates. The School of Sport, Health and Community achieved PhD hosting rights in 2014-2015. Since then, the UoA has developed an emerging PGR community with 32 PGR student registrations in the School (Table 1), and 6.25 FTE completions aligned to the UoA (Table 2).

Table 1. PhD registrations (full-time, part-time, total) during REF2021 assessment cycle

	PhDs		
Year	**FT (n)**	**PT (n)**	**Total (n)**
2013-14	0	0	0
2014-15	1	2	3
2015-16	4	5	9
2016-17	1	3	4
2017-18	1	4	5
2018-19	1	3	4
2019-20	1	6	7
Total	**9**	**23**	**32**

Note: FT, Full-time; n, number; PT, Part-time

Table 2. PhD completions (full-time. part-time, total) during REF2021 assessment cycle

Year	**No. PhDs Awarded**	**No. of Professional doctorates awarded**
2013-14	0.00	0.00
2014-15	0.50	0.00
2015-16	0.00	0.00
2016-17	0.33	0.00
2017-18	1.00	0.00
2018-19	2.00	0.00
2019-20	2.42	0.00
Total	**6.25**	**0.00**

Note: FT, Full-time; n, number; PT, Part-time

To increase PGR capacity, between 2015 and 2019 the UoA was eligible to bid into a central pool of strategically allocated multi- and inter-disciplinary PhD studentships. Accordingly, three of our PGR registrations received scholarships from the University (Mitchelmore & Brock, 2015; Gennings, 2018) equating to £55,000 per student for three years of PGR study (Total: £165,000). During this REF cycle we were also successful in one external, fully-funded scholarship (Belsey, 2018; RTI Surgical; £60,000). In 2019-20, seven staff from the UoA (**Anderson, Batey, Cotterill, Jobson, Faulkner, Holder, Smith**) were supervising PhD students at the University of Winchester

(76%FTE submitted). Staff have also successfully supervised students to completion as external supervisors (see Section 4.3).

During this REF cycle a number of our doctoral students (Brock, Gennings, Mitchelmore, White, Wright) have been recognised by the University for excellence in research, and thus provided monetary support to further assist their research development (e.g., conference attendance, consumables). For example, Mitchelmore used monetary support from the PGR School to support his attendance and presentation at the European College of Sport Sciences conference in Dublin, Ireland (2018).

As we enter the next REF assessment cycle, and with an expansion in supervisory capacity, the UoA will formulate supportive means of encouraging staff and Masters' students to apply for external funding to increase the breadth and number of doctoral candidates aligned with the UoA.

2.8 Developing an undergraduate (UG) research culture

The research culture which has been established with staff and PGR students is also pivotal to the development of our UG students. Staff encourage UG students to participate in the Winchester Research Apprentice (WRAP) and Student Fellow Scheme. These schemes provide students with experiences and skills in data collection, analysis and academic writing, while also providing staff with a valuable opportunity to develop their mentoring and management of research projects. During this REF assessment period, UoA24 staff have worked with 17 WRAP students, receiving £7.7k in bursary support from the University's Knowledge Exchange Centre. With WRAP, **Smith** led a project with two UG students on how the media report athlete mental ill health (these two students have registered to do the MSc in Applied Sport Psychology in 2021-22), while **Faulkner** mentored two UG students during a study investigating the acute effect of physical activity on central haemodynamic variability in individuals with SCI (one student [Paine] started her PhD studies at the University in 2018). The School's Research Seminar Series encourage UG students to engage in additional research discussions.

3. Income, infrastructure and facilities

3.1 Research Income

3.1.1 External funding

During the current REF assessment period members of the UoA have been successful in securing a total of £236,058 external research funding from a range of national and international sources including: UK based charities; UK Government Local Education Authority (LEA); UK, European Union (EU) and Non-EU industry; and private providers. Funding has included: RTI Surgical, Ossur and NewClip Techic (£88,000) - to support a PhD thesis on the 'Return to physical activity after high tibial osteotomy with and without graft materials' (Belsey, DoS **Jobson**, **Faulkner**, Wilson [VP]); Health Education England (>£72,000) - to support three distinct projects, including: i) the Evaluation of Musculoskeletal Capabilities Framework for Allied Health Professionals (AHP) working in first point of contact roles in general practice, ii) An exploratory study looking at the benefits and challenges of having AHPs leading hospital wards, and iii) Evaluating credentials of Advanced Clinical Practitioner trainees to influence the educational support mechanisms and develop national policy guidance (all Locke); Regenerative Clinic (£18,283) - to support the appointment of a Joint Knee Preservation Researcher to expand physical activity and osteotomy research (**Jobson**); Hampshire Hospitals NHS Foundation Trust (£5,700) - to support a research study investigating 'High-intensity interval training and moderate-intensity continuous training in adults with Crohn's disease (Tew…**Faulkner**, BMC Gastro, 2019; Bottoms… **Faulkner**, Plos One, 2019).

3.1.2 Institutional-level infrastructure and funding

Internal funding is a key means of supporting research. **Anderson**, the only member of UoA24 entered into REF2014, was allocated £3,000 annually to support research-related activities during this REF period. Between 2015 and 2018, all staff could apply to a: i) Fast-Track fund (£750), typically to support conference/workshop expenses, and ii) Internal Grants Committee fund that could support a wide range of research-related activities (e.g., research leave, research assistance, generating or supporting impact, workshops, overseas conference attendance; Wright… **Jobson, Faulkner**, *Clin Rehab*, 2020). Between 2018-2020, University policy on devolved internal funding was changed to enhance achievement of the three research-related aims of the RKE Strategy 2015-20, to increase the quality of research (including outputs), impact and environment. Accordingly, since 2018 our UoA WG (Section 1.2) has been able to strategise more effectively via the allocation of QR funding, thus enabling greater equity for individuals in securing funds. In recent years our UoA has used institutional funding to support external consultant fees for our ICS, research assistants and providing buy-out to support external funding applications.

3.2 Research infrastructure and facilities

From inception to delivery, the UoA/SERC has benefited from significant support and investment from the Faculty and University, including funding for new research appointments and adaptations to the building and laboratories to accommodate additional areas of activity and add capacity for future collaborations. During the REF assessment period there has been investment in three new laboratories (Sport Psychology, Strength & Conditioning, Clinical Research Lab) and a computer (n=24)/PGR suite. Substantial equipment investment has occurred in Physiology (Cortex Metalyzer, Terason Ultrasound, Schiller ECG, Artinis NIRS, SphygmoCor XCEL, Vicorder), Biomechanics (Avanti EMG, G-Walk, Qualysis Camera's, RSScan Pressure Mat) and Sport Psychology (Oculus Rift, SMI Eye-Tracking Glasses and AntNeuro EEG, Batak) that has helped support our research development.

3.3 Future plans

In preparation for the next REF assessment, the UoA is determined to increase the number of staff applying, and being successful in acquiring, external funding. Accordingly, increasing 'external income generation' is one of the key principles that underpins the University's RKE Centre and Faculty of Health and Wellbeing's Research Strategy 2020-2030. External research funding will contribute not only the financial sustainability of the UoA/School but also to the breadth and quality of research publications. Since REF2014 the University has invested in the establishment of RKE support services including a Funding manager to help support staff in identifying funds through services such as Research Professional. It is envisaged that such activities will further enhance the income generation of the University during the next REF cycle, broadening the expertise (and reach) of the School/UoA. One central focus for future income growth will be continuing to secure research funding with charitable organisations (Stroke Association) and government departments (Ministry of Defence, UK Sport), as well as targeting research council thematic initiatives (NIHR, ESPRC) and applied health research organisations (NIHR ARC Wessex; HEE) which align with the objectives of the Faculty, School, UoA and Research Centre.

4. Collaboration and contribution to the research base, economy and society

Peer review process

Staff collaborate locally, nationally and internationally with academic and industry partners to provide world-leading research, knowledge and impact. This is evidenced through: i) High quality research networks and collaborations, ii) Service to the discipline (e.g., International journal contributions [editor, reviewer] and invited grant reviewers), and iii) Other professional contributions to the field.

4.1 High quality research networks and collaborations

During the REF assessment period the reputations and research of the UoA staff are recognised by the breadth and quality of national and international research collaborations with highly ranked universities, producing shared outputs with researchers, scientists and clinicians. Of the 23 UoA24 research outputs, 78% of papers were published by UoA members having co-author(s) at another institution, while 39% of these papers had an international co-author(s).

Members of the UoA have continuing, productive collaborations with a range of institutions in the UK, for example, Kings College London (**Smith**, e.g., Runswick, *Int Sport Coach J*, 2020), University of Bournemouth (**Mhanna** e.g., Jones, *Managing Sport Leisure*, 2017), University of Exeter (**Bah**), University of Gloucestershire (**Anderson**, e.g., Bullingham., *Int Rev Soc Sport,* 50, 647-660), University of Kent (**Jobson** e.g., Beedie, *J Sports Sci*, 2016) and Universities of Southampton (**Bah**, **Faulkner** e.g., Lambrick, *Psychophys,* 2016) and Swansea (**Faulkner** e.g., McNarry/ Macintosh, *J Sci Med Sports*, 2020). Faulkner has developed international collaborations in Australia (Askew, University of the Sunshine Coast), New Zealand (Tzeng, University of Otago; Badenhorst, Massey University; Hamlin, Lincoln University; Draper, University of Canterbury), Ireland (McGrane, Dublin City University) and USA (Stoner, University of North Carolina) which has led to a number of high quality outputs and impact (**Faulkner**, e.g., Stoner., Tzeng., *Phys Reports*, 2015). **Smith** and **Anderson** are leading a project with the CLF in USA, alongside national collaborators (White, Oxford Brookes), examining the effects on family members of athletes who have experienced traumatic brain injury (**Smith**... **Anderson**, et al., *Qual Health J*, in review). **Cotterill** and **Jobson** have international collaborations in Belgium (e.g., Franssen, KU Leuven, *J App Sport Psych, 2020*) and Spain (e.g., Zabala, University of Granada, *J Sports Sci, 2017*), respectively, while **Bah** collaborates with Canada (University of Toronto), China (e.g., Wang, Beijing Xiatong University co-edited a book on The Finite Element Method), India (IIT Kharaghpur), South Africa (University of Cape Town) and Senegal (Ecole Polytechnique de Thies).

4.2 Service to the discipline

Members of the UoA are encouraged to seek positions as international journal editors and grant reviewers, and to contribute to the peer-review of journal articles. Four members of the UoA (43% of submitted FTE) have a diverse range of journal editorial roles and commitments, including: Journal of Sports Science and Medicine, Journal of Science and Cycling, Sports (all **Jobson**); Journal of Sports Sciences (**Jobson**; **Faulkner** [advisory board]); Clinical Trials in Degenerative Disease (**Faulkner**); Men and Masculinities, Gender and Society, Journal of Homosexuality, International Review for the Sociology of Sport (all **Anderson**), and International Journal of Sport and Exercise Psychology, Sport and Exercise Psychology Review Frontiers in Psychology: Performance Science (all **Cotterill**). Staff further contribute as international peer-reviewers for a wide range of high-impact journals, with reviews completed for over 60 different Sport and Exercise Science, Leisure and Tourism journals, including: Frontiers in Physiology, International Journal of Sports Physiology and Performance (**Jobson**), European Journal of Applied Physiology, Journal of Hypertension, Medicine and Science in Sports and Exercise, Sports Medicine (**Faulkner**), International Journal of Sport & Exercise Psychology (**Cotterill, Batey,**

Holder, Smith), Journal of Applied Sport Psychology, Qualitative Research in Sport, Exercise and Health (**Smith**), American Journal of Sociology, British Journal of Sociology (**Anderson**), Journal of Biomechanics, Journal of Medical & Biological Engineering & Computing, and International Journal of Nanomedicine (**Bah**), and Tourism Review (**Mhanna**).

Staff expertise is demonstrated by being external funding reviewers for a range of national and international research funding councils and charities. In the UK this includes the: National Institute for Healthcare Research (NIHR) Programme Grants and Research for Patient Benefit (**Faulkner**, **Jobson**, **Cotterill**); NIHR Dissemination Centre (**Faulkner**); Engineering and Physical Sciences Research Council (**Bah**); British Heart Foundation and Stroke Association (**Faulkner**); and Arthritis UK (**Bah**). Internationally, colleagues have reviewed funding applications from New Zealand (Neurological Foundation; **Faulkner**), Canada (Canadian Social Sciences and Humanities Research Council; **Cotterill**, **Smith**) and Belgium (Research Foundation Flanders; **Cotterill**).

4.3 Other professional contributions to the field

Members of the UoA have made substantial contributions to their respective disciplines of expertise, as evidenced by various appointments, recognitions and achievements.

Academic excellence of the UoA has been acknowledged via various awards and honours, including: UK Coaching Coach Developer of the Year (**Cheetham**), Fellow of the British Association of Sport and Exercise Sciences (BASES; **Cotterill**), Associate Fellow of British Psychological Society (BPS; **Cotterill**), Chartered Scientist status (**Batey, Faulkner**), and an MBE awarded for services to education and community sport (**Cheetham**).

Anderson is a Visiting Professor at Newcastle University (UK) and the University of California, Irvine (USA), while **Bah** was a Visiting Fellow at Beijing Jiaotong University (China; 2017-2019). **Faulkner** was Vice-Chair (2015-2020) of the International Network for Secondary Stroke Prevention Researchers (INSsPIRE), a network of global academics that explore the importance of secondary stroke prevention strategies. **Cotterill** is the chair for the BPS Division of Sport and Exercise Psychology (2017 to present), has contributed to the BASES Performance Excellence CPD strand (co-lead, 2016 to present) and BASES Grants and Awards Committee (2010-2015), and is a member of the International Society of Sport Psychology Web and Social Media Committee.

Staff expertise has been recognised by invitations to supervise external PhD students, to completion, at: University of Chichester (Figgins & Szedlak, 2019 [students]; **Smith**), University of Greenwich (Karsten, 2014 [student]; **Jobson**), Solent University (Wright, 2019 [student]; **Jobson**), Massey University (NZ) (Castro, 2018; Gaffney, 2019; Sharma, 2020 [students]; **Faulkner**), Widener University, USA (Pitagora, 2019 [student]; **Anderson**). Members of the UoA have examined external PhDs from various UK (St Marys, Bath, Durham, Loughborough [all **Anderson**]; Essex [**Faulkner**]; Canterbury Christchurch [**Jobson**]), European (Ku Leuven, Belgium; **Cotterill**) and Global (University California Irvine, Michigan USA; **Anderson**) institutions. The subject areas reflect our principal areas of research within SERC (Section 1.3), and have included topics such as leadership in sport, organisational culture, talent development, masculinities, and exercise training.

Staff have disseminated their research via invited Keynote presentations. Recent examples include: European College of Sport Sciences (Prague, Czech Republic, 2019); International

Conference of Men's Rights (London, UK, 2018); European Association for the Sociology of Sport (Bordeaux, France, 2018) (all **Anderson**); UK Coaching Applied Research Conference (Manchester, UK, 2018), UK Coaching Conference (Scotland, UK, 2017) and UK Coaching Summit (Cardiff, UK, 2015) (all **Cheetham**). Faulkner's research into the effect of COVID19 on physical activity, mental health and wellbeing (**Faulkner** et al., *J Sci Med Sports*, 2020) led to an invited contribution to the Physiological Society and Centre for Ageing Better Expert Group report on *'National Covid-19 Resilience Programme: Improving the health and wellbeing of older people during the pandemic'* (https://www.physoc.org/policy/covid19resilience/), which was subsequently launched at a Parliamentary Select Committee (2020).

UoA staff are active advisors to national and international committees and professional institutions. Examples of these roles include consulting for British Canoeing and the Rugby Football Union (**Cheetham**), supporting Team GB's Olympic and Paralympic athletes (Neupert) and providing training and testing sessions for governing bodies such as British Rowing and GB Hockey (**Cheetham**). Staff contribute to sport-related courses delivered by UK Coaching, UCI World Cycling and Centre Mondial Cyclisme (**Cheetham**). UoA staff also contribute to professional associations or learned societies in a variety of ways. Colleagues in our Physical Activity, Health and Wellbeing and Sport Performance SERC areas supervise and review for BASES (**Cotterill, Faulkner, Jobson**) and BPS (**Cotterill, Holder)** accreditation pathways, hold positions on the BPS DSEP Committee and Training Committee, and have organising roles for a number of conferences such as the International Conference for Qualitative Research in Sport (Chichester, UK 2016; UBC, Vancouver, Canada; **Smith**) and the BPS Division of Sport and Exercise Psychology Conference (Belfast, 2018; Solihill, 2019; **Cotterill**).