

Undergraduate and Postgraduate Strength and Conditioning Courses in the United Kingdom: A Report Study

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ABSTRACT

In the United Kingdom (UK), a degree in strength and conditioning (S&C) or an associated discipline is a common requirement for obtaining a professional S&C certification and employment as a S&C coach. However, limited research has comprehensively reviewed undergraduate and postgraduate S&C degrees in the UK, which this study aimed to do. A search for S&C degrees was conducted via two directories. In total, 20 undergraduate and 29 postgraduate courses were identified. All course information, including module titles, was extracted. Course information was assessed using frequency analysis and module titles via open coding. Entry requirements for undergraduate degrees ranged from 80–120 UCAS points, and a 2:1–2:2 degree classification for postgraduate degrees. Almost half of undergraduate S&C degrees were considered 'multidisciplinary' and included other topics (e.g., BSc S&C and rehabilitation). Over half of the undergraduate degrees offered a foundation year, and 59% of postgraduate degrees offered a non-academic entry option. Overall, 50% of undergraduate degrees could be completed as full-time or part-time, which increased to 79% at postgraduate level. Placement modules were compulsory across undergraduate degrees (except

for one) and featured to a lesser extent at the postgraduate level. The most common modules at the undergraduate level focused on anatomy and physiology, S&C, biomechanics and movement analysis, research, and academic and professional skills. The least common modules were motor learning and control, business, and sociology. Differences were observed with postgraduate degrees, given an increased focus on modules associated with research, S&C, and academic and professional skills. This information may help higher education providers to evaluate, revise, and develop S&C courses; awarding associations further enhance recognition and accreditation pathways for S&C degrees; potential employers tailor job descriptions and specifications to align with graduate capabilities; and prospective students gain insight into each course, potentially informing their course choice(s).

INTRODUCTION

Three associations recognise and accredit higher education (HE) strength and conditioning (S&C) degree programs in the United Kingdom (UK), which are the National Strength and Conditioning Association (NSCA), the Chartered Institute for

the Management of Sport and Physical Activity in collaboration with the United Kingdom Strength and Conditioning Association (CIMSPA-UKSCA), and the International Universities Strength and Conditioning Association (IUSCA). Each association emphasises the need for education from professional and academic sources, exemplified by each S&C association having a peer-reviewed journal, which are widely used in HE. To gain employment in S&C (e.g., S&C coach), a common prerequisite is that candidates hold a professional certification from a S&C association¹. Whereas, to obtain a professional certification with the NSCA (certified strength and conditioning specialist [CSCS]) or IUSCA (accredited international strength and conditioning practitioner [aISCP]), a degree in a relevant discipline is required.

Demographic information of 156 S&C coaches across different sports, countries, and levels showed that 65% held a master's degree, 25% a bachelor's degree, and 8% a PhD². These findings were similar for S&C coaches ($n = 33$) working in professional cricket, where 63% held a master's degree, 34% a bachelor's degree, and 3% a PhD³. Whereas, in professional football, S&C coaches ($n = 52$) tended to hold higher level qualifications, with 48% having a master's degree, 27% a bachelor's degree, and 25% a PhD⁴. Compared to other industries, these standards may seem high, but this is possibly due to the increased popularity of S&C in the UK, where the supply of S&C graduates (and associated disciplines) outweighs the demand⁵. The S&C industry has continued to evolve, with an undergraduate or postgraduate degree in S&C now being an attractive choice for different professions (e.g., sports scientists, personal trainers, tactical professionals, health care providers, physical education teachers, and sports coaches) to upskill and enhance their profile in a competitive job market^{1,5}.

The design of HE S&C degrees appears to be multifactorial and influenced by (a) associations that recognise and accredit S&C courses and require specific criteria to be included (e.g., modules, assessments, and placements); (b) industry requirements for employment; (c) catering for different professions upon entry and exit of courses (e.g., other disciplines beyond S&C), and (d) remaining contemporary in a competitive HE market. However, the design and content of these courses in the UK have yet to be comprehensively investigated, thus making informed decisions on the current landscape of S&C education in the UK

and propositions for future improvement difficult. Therefore, this paper provides an overview of every UK undergraduate and postgraduate S&C degree, including general course information and modules covered. This may be important to all stakeholders, including HE providers, associations that recognise and accredit S&C degrees, employers, and students. Accordingly, HE providers can evaluate, revise, and develop S&C courses; associations can further develop their course recognition and accreditation pathways; employers can tailor job descriptions and specifications to align with graduate capabilities; and students can gain insight into each course, potentially supporting their course choice(s).

METHODS

Course Eligibility Criteria

To report the general information and modules covered by S&C degrees in the UK, courses had to meet the following inclusion criteria: (a) validated by a HE provider in the UK; (b) a minimum duration of three years for undergraduate and one year for postgraduate; (c) offered during the 2023-2024 academic year; and (d) course outline and modules (core and optional) were available online. The lead author (AW) and senior (final) author (AT) performed a detailed review of S&C courses in the UK to ensure the selected criteria were relevant.

Course Search Strategy

The lead author (AW) searched for undergraduate and postgraduate S&C degrees between the 23rd and 25th of July 2023, before the 2023-2024 academic year. Searches were conducted initially using the UKSCA directory (<https://uksca.org.uk/SandC-degrees>), followed by the Universities and Colleges Admissions Service (UCAS) (<https://digital.ucas.com/search>) directory. The UKSCA directory was standalone and did not require any search terms, whereas the UCAS directory was explored using the search term "strength and conditioning". These directories were deemed appropriate sources for S&C degrees in the UK.

Data Collection Process

The general information and modules covered by each S&C degree included in this report were accessed via their web pages. All data were manually extracted into a Microsoft Excel workbook

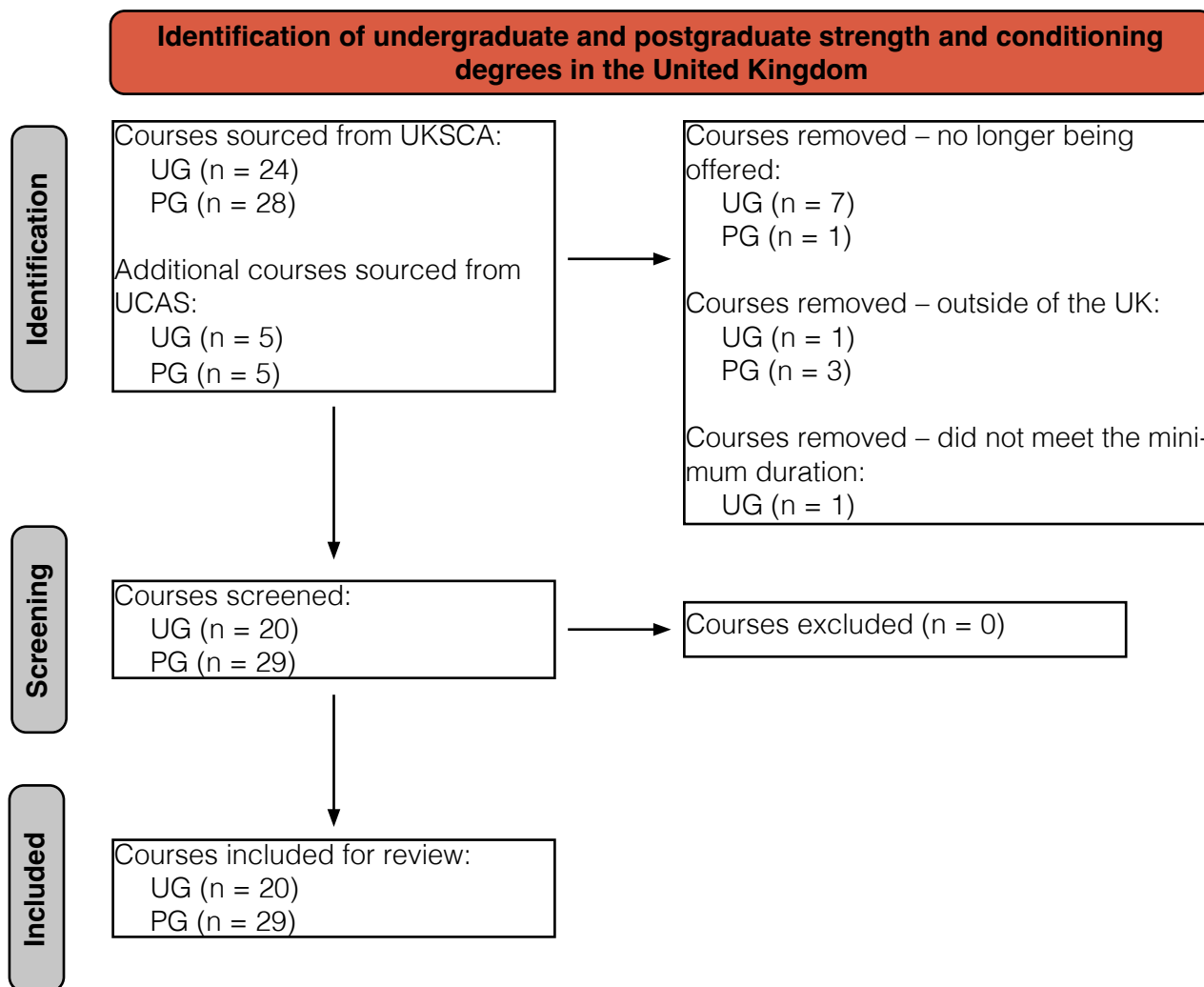


Figure 1. Flowchart illustrating the inclusion and exclusion of undergraduate and postgraduate strength and conditioning degrees in the United Kingdom selected for review.

UKSCA – the United Kingdom Strength and Conditioning Association; UCAS – the Universities and Colleges Admissions Service; UG – undergraduate; PG – postgraduate.

(Microsoft Corporation, Redmond, Washington, USA) by the lead author (AW) and agreed upon by the senior (final) author (AT). The data extracted included (a) course information and (b) module titles.

Data Analyses

All general course information was assessed using frequency analysis, with lowest, highest, and median values shown where applicable. Module titles were assessed using open coding to identify key terms (Glaser & Strauss, 1967; Glaser, 1978). To improve the accuracy of coding for modules with general or ambiguous titles, the lead author (AW) and senior (final) author (AT) read module descriptors where appropriate. The agreement of terms and intercoder reliability between two authors (AW and AT) who are experienced HE teachers in S&C was 96.4%, which

is considered 'acceptable by all' (Neuendorf, 2002).

RESULTS

Overall, 62 S&C degrees (29 undergraduate and 33 postgraduate) were identified using the search strategy outlined in Figure 1. After removing courses that did not meet the inclusion criteria, 49 courses (20 undergraduate and 29 postgraduate) were included for further analysis. Note that three undergraduate programs were delivered by further education providers but validated by local universities. All courses were reviewed and agreed upon for inclusion by the lead (AW) and senior (final) author (AT). General course information and modules covered in each S&C degree are available via <https://forms.gle/rdMeuLcDQfjxzjZA7>. Furthermore, an interactive map of available

courses is available from the following link: <https://rb.gy/lbrcje>

Course Information

The general course information of included studies is presented in Table 1.

Modules Titles

The identified terms based on module titles are presented in Table 2.

DISCUSSION

This is the first study to comprehensively review and summarise every undergraduate and postgraduate S&C degree in the UK and present course information and modules covered. The following will discuss course information from Table 1 in a step-by-step format, followed by an evaluation of the modules covered in Table 2.

Location

As can be observed from the interactive map of S&C courses, 85% of undergraduate and 86% of postgraduate courses are offered in England. A higher proportion of courses in England is expected given its population of ~56 million, compared to Scotland ~5.4 million, Wales ~3.1 million, and Northern Ireland ~1.9 million. Courses tended to be widespread across England, with the most populated cities having a higher density of HE provision. In conjunction with the broader information presented in this paper, it may be helpful for HE providers to ascertain their local competition or observe geographical regions with large populations that do not have a course (e.g., Glasgow, Scotland). This is because location, distance, and accessibility from a student's home often influence where a student decides to study⁶.

Course Type

At the undergraduate level, there was an equal split between 'multidisciplinary' degrees that offer different specialisations or focus (e.g., S&C with rehabilitation) and exclusively titled 'S&C' degrees. In contrast, at the postgraduate level, courses were more exclusively titled 'S&C'. Whether a student generalises initially, then specialises later on, or specialises throughout is an individualised decision, with no clear data to

suggest which is best. For students uncertain of their academic or career path, having the ability to enter a 'multidisciplinary' undergraduate course and choosing their specialisation later may be considered advantageous, given this is when students will be looking to deepen their expertise and skills to obtain employment. Furthermore, running a 'multidisciplinary' undergraduate course may enable the consolidation of staffing, facility requirements, and administrative processes for HE providers.

Course Entry Requirements and Options

Entry requirements for undergraduate S&C degrees ranged from 80-120 UCAS points, with the lowest requirements from further education providers delivering courses validated by universities. Meanwhile, a 2:1 or 2:2 undergraduate degree classification was required for postgraduate degrees. This information may be useful for HE providers to see the entry requirements across the UK and concerning local competition. Students can use this consolidated information to ascertain which courses they can apply for based on their current credentials. At the postgraduate level, ~60% of HE providers stipulated that they offer non-academic experiential entry, which means there is a process of recognising prior learning and achievement obtained through the workplace or other experiential means⁷. It is deemed vital that HE providers recognise that certain skills, knowledge, and expertise are gained through work and other contexts, as this may be a more viable route for working students, mature students, or those looking to change careers⁷.

Fees

Fees for undergraduate degrees ranged from £8950–9250 for UK students. Note students ordinarily resident in Scotland and doing their first degree will generally be eligible for free tuition for five years. The maximum a HE provider can charge for a course is determined by whether they have a teaching excellence framework (TEF) award (£9250) or not (£9000). Meanwhile, for postgraduate degrees, there were large discrepancies concerning course fees, which ranged from £6531–13,000 for UK students, as HE providers have greater flexibility in pricing courses. International students' fees for undergraduate degrees ranged from £12,000–16,380, with the median value compared to UK students being ~38% higher. Similarly, international student fees for postgraduate degrees ranged from

Table 1. A description of course information for undergraduate and postgraduate strength and conditioning courses in the United Kingdom

Item	Description	UG (n = 20)	PG (n = 29)
Location	England	17	25
	Wales	2	2
	Scotland	1	1
	Northern Ireland	0	1
Course Type*	S&C	11	26
	Multidisciplinary	9	3
UCAS Points (UG)/Entry Degree Classification (PG)	Highest/2:1	120	9
	Lowest/2:2	80	20
	Median	104	
Non-Academic Experience Entry Stipulated	Yes		17
	No		12
Tuition Fees (UK)**	Highest	£9,250	£13,000
	Lowest	£8,950	£6,531
	Median	£9,250	£9,000
Tuition Fees (International)	Highest	£16,380	£28,100
	Lowest	£12,000	£6,531
	Median	£14,900	£16,000
Course Mode	Full-Time or Part-Time Option	10	23
	Full-Time Only	10	5
	Part-Time Only		1
Full-Time Duration (yrs)	One		29
	Three	19	
	Four	1	
Course Type	In Person	20	26
	In-Person or Distant Learning Option		2
	Distant Learning		1
Foundation Year Offered***	Yes	12	
	No	8	
Compulsory Placement Module	Yes	19	17
	No	1	12
Placement Sandwich Year	Yes	5	
	No	15	

UG – undergraduate; PG – postgraduate; S&C - strength and conditioning; UCAS - the Universities and Colleges Admissions Service; UK – the United Kingdom.

*'S&C' refers to courses exclusively focusing on S&C, and 'Multidisciplinary' refers to courses offering different specialisations or focuses (e.g., S&C with rehabilitation).

**Students ordinarily resident in Scotland and doing their first degree will generally be eligible for free tuition for five years.

***Scottish universities do not offer a foundation year within their four-year undergraduate degree structure.

£6,531–28,000, with the median value compared to UK students being ~44% higher. According to the Higher Education Statistics Agency (HESA) ⁸, in the 2021-2022 academic year, 2,862,620 students were studying with HE providers in the UK, with 71% (2,042,310) at the undergraduate level and 29% (820,310) at postgraduate level. Across 267 HE providers, 53% of total income is derived from tuition fees and education contracts (£24.6 billion), with tuition fees from international students contributing £10 billion ⁹. International students make up 15% (307,470) of student enrolments at the undergraduate level, which increased to 45% (372,500) at the postgraduate level ⁸.

Overall, 4.1% (117,505) of HE students study biological and sports science-based subjects, which is made up of 82% (96,510) undergraduate students and 18% (21,000) postgraduate students ¹⁰. This makes biological and sports-science based subjects the UK's 10th most popular subject area ¹⁰. These statistics suggest that substantial income for HE providers can be derived from S&C courses and associated disciplines. Due to income potential, international students may be a recruitment focus, particularly at the postgraduate level. This may underpin the growing number of S&C degrees offered in the UK.

Table 2. Frequency table of terms identified from module titles of undergraduate and postgraduate strength and conditioning courses.

Module Terms	Exemplar Module Titles	UG (f)	UG (% of modules)	PG (f)	PG (% of modules)	% difference between UG and PG
Anatomy/Physiology	Foundations of exercise physiology	59	13.8	11	5.3	-8.5
S&C	Applied Strength and Conditioning	55	12.9	34	16.4	3.6
Biomechanics/Movement Analysis	Biomechanical Analysis of Human Movement	47	11	9	4.3	-6.6
Research	Research Methods and Inquiry	47	11	51	24.6	13.7
Academic/Professional	Work Based Practice	43	10	31	15	4.9
Nutrition	Nutrition for Strength and Conditioning	27	6.3	4	1.9	-4.4
Injuries	Injury Prevention and Rehabilitation	25	5.8	7	3.4	-2.5
Psychology	Applied Sport and Exercise Psychology	21	4.9	1	0.5	-4.4
Coaching/Teaching	Coaching Contexts and Methodologies	20	4.7	8	3.9	-0.8
Health/Fitness	Exercise Prescription for Health	17	4	0	0	-4.0
Program Monitoring/Design	Programming and Monitoring Athletic Development	11	2.6	14	6.8	4.2
Sports Science	Fundamentals of Sport Exercise Science	11	2.6	4	1.9	-0.6
Population Specific	Special Populations	11	2.6	6	2.9	0.3
Testing/Data Analysis	Athlete Testing and Assessment	10	2.3	6	2.9	0.6
Performance Analysis	Performance Analysis for Elite Sports	8	1.9	0	0	-1.9
Energy Systems	Advanced Conditioning	5	1.2	3	1.4	0.3
Sociology	Social Issues in Sport and Exercise	4	0.9	5	2.4	1.5
Business	Sponsorship and Strategic Sport Brand Management	3	0.7	2	1	0.3
Motor Learning and Control	Motor Performance and Learning	3	0.7	4	1.9	1.2
Multi-Topic	The Science Underlying Performance and Injury	1	0.2	7	3.4	3.1
Total		428		207		

UG – undergraduate; PG – postgraduate

Course Mode and Type

For undergraduate courses, there was an equal split of those offering full-time and part-time options. Meanwhile, for postgraduate courses, most offered full and part-time options (79%), followed by full-time only (17%) and part-time only (3%). According to the HESA, in the 2021-2022 academic year, 79% of undergraduates studied full-time and 21% part-time; for postgraduates, 66% studied full-time and 34% part-time⁸. For biological and sports-science based subjects, there tended to be more students undertaking full-time undergraduate degrees (93%) and postgraduate degrees (74%)¹⁰. An increased trend at the postgraduate level to study part-time seems logical, and UK S&C courses appear to offer more flexible arrangements to meet students' needs. Research investigating the experiences and reasons for students to select part-time postgraduate education revealed that it allowed students to study around other commitments (e.g., work), with the desired outcomes from their degrees being to improve their capability or likelihood of promotion within a current job role¹¹.

Foundation Year

Overall, 60% of undergraduate degrees offered a foundation year, which allows students to conduct an additional year before joining a three-year degree program, except for Scotland, which does not offer a foundation year within their four-year undergraduate degree structure. Foundation years are often the option for students who did not meet the academic grade or required experience to enter a three-year degree program directly. Accordingly, they aim to develop general and subject-specific confidence, knowledge, and skills. From a student's perspective, it enables them to join a HE course and enter a four-year pathway in a subject of their choice (if available). For HE providers, it allows them to promote a through train from the foundation year onto a three-year degree, increasing student intake and benefiting from associated revenue.

Placement

It is commonplace for S&C courses at the undergraduate level to offer compulsory placement modules (95%), with fewer courses offering placement sandwich years (25%). While courses at the postgraduate level less frequently offered compulsory placement modules (59%). It is considered important that students on S&C degrees

and associated disciplines undertake a placement and obtain practical experiences that supplement their formal education^{12,13}. This allows students to learn and develop key work-based behaviours and skills (e.g., coaching, equipment setup, data collection, and data analysis)¹². Accordingly, research suggests that the workplace skill levels (e.g., reflective thinking, problem-solving, and managing others) and self-efficacy (e.g., dealing with pressure, navigating workplace politics, and understanding role expectations) of students who completed an S&C placement exceed those who did not¹⁴. Also, placements may form part of the practical experience hours required by associations that recognise and accredit S&C degree programs in the UK (e.g., NSCA, CIMSPA-UKSCA, and IUSCA).

Module Titles

There is limited evidence linking subject knowledge (i.e., modules undertaken) in S&C with employment. However, a recent analysis of 50 global S&C job descriptions provided an overview of the essential skills required of candidates¹. The most common skill required was session delivery (84%), followed by communication (80%), program design (69%), teamwork (53%), testing (51%), sport research knowledge (47%), data analysis and reporting (39%), educator and mentor (37%), management and leadership (29%), and information technology (29%), injury and rehabilitation (16%), and nutrition (6%).

Overall, 12.9% (55/428) of modules delivered across undergraduate S&C degrees were attributed to S&C (e.g., program or exercise delivery) and 4.7% (20/428) to coaching and teaching, thus developing students' attributes for the most desirable skills in S&C job descriptors (i.e., session delivery and communication)¹. Surprisingly, only 2.6% (11/428) of modules explicitly focused on program monitoring and design and 2.3% (10/428) on testing and data analysis, despite these being sought-after skills for employers¹. Research is commonly taught, with 11% (47/428) of modules focusing on this, which is a desirable skill for employment and prepares students for postgraduate education. Although expertise in injury and rehabilitation was not a prominent requirement of employers, these topics were extensively taught at the undergraduate level. The most commonly taught topics also included anatomy and physiology (13.8%; 60/428 modules) and biomechanics and movement analysis (11%; 47/428 modules). Although, according to job

descriptors, these were not highly sought skills, it may be argued that knowledge in these areas underpin various other components of S&C (e.g., program design and coaching) and, therefore, are staple topics across S&C degrees. Furthermore, key topics such as anatomy and physiology are required for S&C degrees to obtain recognition or accreditation with the NSCA, CIMSPA-UKSCA, and IUSCA.

The main differences observed between the modules taught at undergraduate and postgraduate levels were a considerable reduction in anatomy and physiology (-8.5%), biomechanics and movement analysis (-6.6%), psychology (-4.4%), and nutrition (-4.4%). There were increases in modules associated with research (+13.7%), academic and professional skills (+4.9%), program monitoring and design (+4.2%), and S&C (+3.6%). This shift seems logical as modules move from a generalised nature at the undergraduate level to more specifically S&C focused at the postgraduate level, with studies possibly being more directed on knowledge and skills rather than knowledge base alone. Almost one quarter (24.6%; 51/207) of all postgraduate level modules were research-focused. Although not highlighted explicitly as a focal point for employers, research modules enable students to develop written and verbal communication skills, teamwork (i.e., with a supervisor), testing, sports research knowledge, data analysis and reporting, management and leadership (i.e., when conducting the project), and computer literacy (i.e., use of software for data collection, analysis, write up, and presentation). Therefore, it may be argued that, given the broad benefits and skills developed via research-based modules and projects, these are important aspects of postgraduate degrees. Modules focusing on S&C comprised 16.4% (34/207) of all modules offered, which is logical given the more specific nature of postgraduate degrees. Furthermore, with an increase of modules for academic and professional skills (15%; 31/207 modules) and program monitoring and design (6.8%; 14/207 modules), it seems postgraduate degrees are well aligned with the aforementioned job descriptors, thus preparing students for the workplace¹. Surprisingly, at the postgraduate level, there were limited modules offered for business (1.9%; 4/207), as graduates may wish to start their own business or consultation services in S&C independently. Therefore, this may be an area of focus for S&C courses being revised or developed.

LIMITATIONS

The limitations of this study include (a) course information may have changed or been updated as of the search date outlined in this study, so those seeking up-to-date information may directly access this by each S&C degrees respective webpage; (b) when extracting course information some websites were easier to navigate than others, so, to avoid misinterpreted or missed information, each website was checked numerous times; (c) degree and module titles may not be representative of all topics and sub-topics covered, therefore, where possible module descriptors were read to avoid incorrect coding; (d) the geographical map of courses is based on the university location and not the exact location or campus to which the S&C degree is delivered, so, prospective students may wish to clarify with HE providers exactly where their education will take place; and (e) due to the lack of associated research for the topic area of this paper, an extensive critique against prior research was not feasible throughout, but it is hoped this paper forms a basis for future research to do so.

CONCLUSION

This is the first study to present a comprehensive overview of undergraduate and postgraduate S&C degrees in the UK, including course information and modules covered. Differences were observed across HE providers concerning their entry requirements, fees, and course structure, allowing potential students to choose a course that meets their needs. Undergraduate S&C degrees offered a broader range of module topics compared to postgraduate degrees. Accordingly, almost half of undergraduate S&C degrees were considered 'multidisciplinary' (e.g., BSc S&C and rehabilitation), whilst all except three postgraduate degrees were exclusively termed 'S&C' (e.g., MSc S&C). The data presented in this study may inform various stakeholders of the current landscape of undergraduate and postgraduate S&C education in the UK.

PRACTICAL IMPLICATIONS

The information in this study may be helpful for stakeholders associated with undergraduate and postgraduate S&C education in the UK. This includes HE providers, associations that recognise and accredit S&C degrees, employers, and

students. Higher education providers can evaluate, revise, or develop their S&C degrees with this information. This may be of particular value in degree review or reaccreditation processes. Associations that recognise and accredit S&C courses (i.e., NSCA, CIMSPA-UKSCA, and IUSCA) may observe the content of existing S&C courses, which could influence their criteria, standards, and procedures. Employers may align job descriptions and person specifications with graduate knowledge and skills. Finally, students can access an overview of S&C degrees, modules covered, and the differences across undergraduate and postgraduate level studies, which may support their course choice or pathway.

FUTURE RESEARCH

This paper forms part of a four-paper series, including: (a) a report of undergraduate and postgraduate S&C course recognitions and accreditations in the UK; (b) an investigation into stakeholder's perceptions of undergraduate and postgraduate S&C education in the UK; and (c) recommendations for developing undergraduate and postgraduate S&C courses in the UK. It is aimed these papers will be repeated periodically (e.g., every three years) to monitor and assess for longitudinal changes. Future research may replicate the methods outlined in this paper for other countries (e.g., the United States of America) and disciplines (e.g., sports therapy).

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