

*Final report to Scottish
Student Sport and from the
sportscotland from the
Brunel Centre for Sport,
Health and Wellbeing*

*Evidence Review:
Evidence Review:
Understanding the
value of sport and
physical activity in
tertiary education*

Dr Louise Mansfield
Professor Tess Kay
Brunel Centre for Sport, Health and Well Being (BC•SHaW)
Dr. Catherine Meads
Health Economics Research Group (HERG)

with
Dr. Iain Lindsay
Brunel Centre for Sport, Health and Wellbeing (BC•SHaW)

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BC•SHaW





Evidence Review

Understanding the Value of Sport and Physical Activity in Tertiary Education

Louise Mansfield (BC•SHaW), Tess Kay (BC•SHaW), Catherine Meads (HERG) & Iain Lindsay (BC•SHaW)

Brunel Centre for Sport, Health and Wellbeing
School of Sport and Education
Brunel University

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Foreword

It is a pleasure to introduce this evidence review into the value of physical activity and sport in tertiary education. This important piece of work, commissioned on our behalf by **sportscotland** and undertaken by Brunel University, was conducted in Spring 2013 with the hope of gathering strong evidence for the relationships between physical activity and sport, and health, employability, academic achievement, social networks, and identity and inclusion.

The paper indicates a number of associations between taking part in physical activity and sport and a host of positive outcomes – for both individuals and institutions. However it also concludes that the availability of best quality evidence is very scarce. This report therefore poses interesting challenges to sport and physical activity providers about the way programmes are framed and about the extent to which evaluation is embedded in the delivery of these programmes.

Addressed fully, this challenge has the potential to galvanise the work of service and academic departments in tertiary education around a common purpose. By working together there is a chance to significantly develop the evidence base over the years ahead thereby building the case for continued development of activities.

Scottish Student Sport looks forward and is committed to engaging members and partners alike in order to take this forward over the coming years.

I hope that you find the review to be informative and thought provoking and if you share the spirit of positive challenge then I look forward to working with you in the future.



Stew Fowlie
Chief Operating Officer
Scottish Student Sport, 3rd Floor, 48 Pleasance, Edinburgh, EH8 9TJ
www.scottishstudentsport.com

Alastair Sim - Director, Universities Scotland

This is a very interesting and timely evaluation of the role of sport and physical exercise within higher education institutions. As Scotland plays host to the XX Commonwealth Games in Glasgow in 2014 there is perhaps no better time to establish whether participation in sport and exercise is delivering a much wider range of benefits for Scotland's students over and above the more widely recognised health benefits.

The research paper sets out a compelling number of areas of the student experience at university that might be enhanced through sport and some forms of physical exercise including academic attainment, employability and well as issues about student identity and inclusion. If causation can be proven this has the potential to be very significant as such areas are fundamental to the student experience that higher education institutions look to offer their students.

We welcome Scottish Student Sport's commitment to investigate the evidence behind this. This work has the potential to deliver a lasting legacy for Scotland's students reflecting the wider aspiration that the Glasgow 2014 Commonwealth Games should deliver a lasting legacy for Scotland.

John Henderson - Chief Executive, Colleges Scotland

Scottish Student Sport has an important role in advocating participation and enjoyment of sport for our colleges' students. We welcome SSS' efforts to demonstrate the value of physical activity and sport through this report and encourage them to develop this further over the coming years.

Colleges support the development of sport in towns and cities across Scotland. Not only do our member colleges train the fitness professionals of the future, they also provide facilities and encouragement for their students and local communities. We support any efforts to strengthen our understanding of this work's wider impact - especially the value that this can add to life at College.

Next year will be an exciting time for sport in Scotland. We'll be interested to hear recommendations from Scottish Student Sport about how our member colleges could help to contribute to the 2014 legacy.

Raechel Matthey - Vice President, NUS & Gordon Maloney – President, NUS Scotland

We are really pleased to see that this report explores the breadth of potential benefits that sport and physical activity brings to students. Experience tells us that the time that students spend engaging in extra and co-curricular activities whilst in tertiary education can create life-changing moments that benefit both students and the communities they live in for a long time.

We also know from our work that sport is integral to many students' experience whilst studying and ensuring that institutions provide adequate resource and support at all levels of sporting opportunity is essential. We are supportive of viewing sport as a gateway to additional activity and benefits. Many of our great student leaders come from strong sporting backgrounds and we recognise that sport can be part of a solution to growing mental health concerns amongst students. We also identify with the notion that sport and physical activity can help students feel a sense of belonging to their institution thus making them less likely to drop out of their studies.

We support implementation of the recommendations contained within this report across the student movement. Generating best quality evidence will give even stronger weight to the value of sport and physical activity in the future.

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EXECUTIVE SUMMARY

Introduction

This 'Evidence Review: understanding the value of sport and physical activity in tertiary education' was commissioned by Scottish Student Sport and supported by **sportscotland**. The research was led by the Brunel Centre for Sport, Health and Wellbeing (BC•SHaW) and was conducted between February and May 2013. There is increasing political focus across the UK on the provision of extracurricular and enrichment activities like sport and physical activity for young people in the 16+ education sector and the environment for provision in Scottish tertiary education is complex. This evidence review provides a timely mechanism to collate and synthesise available knowledge to inform future work in the sector on the value of sport and physical activity to health (physical and mental), employability, academic attainment, inclusion and identity, and social networks.

Scope of the Evidence Review

Two key questions guided our search and review work:

1. What is the impact of sport and physical activity in relation to health, employability, academic achievement, inclusion and identity, and social networks/sociability in tertiary education?
2. What factors shape the implementation of effective sport and physical activity programmes in tertiary education?

The Systematic Review Approach

The review was conducted in accordance with the principles advocated by the Economic and Social Research Council's (ESRC) *Evidence Network* (Popay et al., 2006). Procedures focused on objective, replicable, systematic and comprehensive searches of evidence and included a transparent audit trail of methods and processes. A range of grey literature that might not be readily available in searching peer-reviewed literature is also included. The result is a synthesis of *best evidence* on the value of sport and physical activity in the tertiary education sector. The final number of included full text sources in this evidence review was 10. Relevant grey literature included evaluation reports, policy documents and primary research not available in peer reviewed literature.

Findings and Recommendations

Sport, physical activity and health in tertiary education

The evidence for the contribution of physical activity to health is well established and compelling. As sport involves being physically active, it is believed to have a contribution to make to positive health outcomes. The Scottish tertiary education sector is well placed to build evidence for the relationships between sport and health through the collection and analysis of a range of primary and secondary sources.

Sport, physical activity and employability in tertiary education

There is some evidence that sport has a role to play in the development of graduate employability skills and attributes such as those connected to leadership, organisation, time management, and team working, and that sport is significant in terms of recruitment and retention in the tertiary sector. There is scope for University and College sport stakeholders to engage in projects that

explicitly seek to use sport engagement to enhance graduate employability, and produce case studies of those projects.

Sport , physical activity and academic attainment in tertiary education

There is some correlational evidence that sport participation through adolescence has a positive effect on time management, educational productivity, aspirations to engage in tertiary education and increased chance of obtaining a degree. There are possible positive associations between academic attainment and employability, and scope for the tertiary education sector to developing understandings of the relationship between academic attainment, employability and sport through a range of quantitative and qualitative approaches.

Sport, physical activity and inclusion and identity in tertiary education

There is some evidence that the provision of structured recreational activities that are high quality, enjoyable and meaningful can lead to personal benefit and enhance the student experience. There is scope for the sector to develop sport programmes that harness different delivery models for increasing students' participation in sport and physical activity (e.g. student-led initiatives, community linked programmes) and to reflect diversity in the tertiary education population in terms of protected characteristics.

Sport, physical activity and social networks/sociability in tertiary education

There is some evidence that community cohesion, pride or spirit ('festival' or 'communitas') can be associated with sports, sports people, sports events and sports places and is significant in creating an enhanced sense of belonging as well as raising the profile/awareness of local activity programmes and events. A sense of community can also be used to develop participation opportunities from national sports events, and the forthcoming Commonwealth Games in Glasgow 2014 provides such an opportunity.

Conclusion

This evidence review has shown that while there are strong theoretical grounds for believing that sport and physical activity can contribute to a range of positive outcomes in tertiary education, there is a marked absence of rigorous data to support this. More specifically, there is an underdeveloped empirical evidence base for the benefits of sport participation to each of the areas addressed in the review (health, employability, academic attainment, inclusion and identity and social networks). This absence of evidence does not of course mean that such benefits do not occur; however, the lack of evidence does make it difficult for organisations and institutions to develop clear strategies for future work in the tertiary education sector, and justify resourcing them. To address this, our overarching recommendation is for **sector-led collaborative approaches** which draw on **existing expertise in the Scottish tertiary education sector** to develop a stronger evidence base for the value of sport and physical activity through **high quality, credible research, monitoring and evaluation**.

HEADLINES

The *'Evidence Review: understanding the value of sport and physical activity in tertiary education'* commissioned by Scottish Student Sport and supported by **sportscotland**, was conducted between February and May 2013. Five indicative review themes were identified in the project brief: health (physical and mental), employability, academic attainment, inclusion and identity, and social networks. An additional theme relating to the management and delivery of sport programmes relevant to the tertiary sector was also included.

The value of sport and physical activity to health: Headline

The evidence for the contribution of physical activity to health is well established and compelling. As sport involves being physically active, it is believed to have a contribution to make to positive health outcomes. Evidence of the contribution of sport to physical activity and health is underdeveloped.

The value of sport and physical activity to employability: Headline

There is some evidence that sport has a role to play in the development of graduate employability skills and attributes such as those connected to leadership, organisation, time management, and team working, and that sport is significant in terms of recruitment and retention in the tertiary sector. Overall the evidence for the contribution of tertiary education sport and physical activity to employability is limited by the paucity of relevant and published empirical research.

The value of sport and physical activity in supporting academic attainment: Headline

There is some correlational evidence that sport participation through adolescence has a positive effect on time management, educational productivity, aspirations to engage in tertiary education and increased chance of obtaining a degree. Reports of the acclaimed spill-overs of sport involvement to academic attainment appear to be overstated.

The value of sport and physical activity for inclusion and identity: Headline

There is some evidence that the provision of structured recreational activities that are high quality, enjoyable and meaningful can lead to personal benefit and enhance the student experience. Overall, there is limited empirical research for the benefits of sport participation on inclusion and identity for young people.

The value of sport and physical activity for social networks/sociability: Headline

There is some evidence that community cohesion, pride or spirit ('festival' or 'communitas') can be associated with sports, sports people, sports events and sports places and is significant in creating an enhanced sense of belonging as well as raising the profile of local activity programmes. A sense of community can also be used to develop and promote participation opportunities from national sports events. Overall, there is a lack of empirical research exploring the value of sport for social networks/sociability.

THE RESEARCH CONTEXT: SPORT AND PHYSICAL EDUCATION IN TERTIARY EDUCATION

Introduction

Brunel University are pleased to submit this *'Evidence Review: understanding the value of sport and physical activity in tertiary education'*. The report is submitted on behalf of the Brunel Centre for Sport, Health and Wellbeing (BC•SHaW), the university's social science-led multidisciplinary sport research centre. The Centre has a strong focus on academically rigorous and ethically robust research that can inform policy and practice.

In this report we provide an overview of the research topic and context including a summary of the contemporary sport and physical activity environment in the Scottish tertiary education sector. We provide details of our approach to the evidence review, and present the findings as they align with the project brief that the review will include evidence relating to the categories of:

- health and wellbeing (both physical and mental)
- employability
- supporting academic attainment
- inclusion and identity
- social networks

We include additional evidence relating to the following topics:

- management and delivery of sport programmes relevant to the tertiary sector

This report may offer additional value as sources of guidance for policy making and practice. The report offers recommendations for policy makers and practitioners working in sport and physical activity in the tertiary education sector in Scotland.

Sport and physical activity in the tertiary education sector

In recent years there has been an increasing political focus across the UK on the provision of extracurricular and enrichment activities such as sport and physical activity for young people in the 16+ tertiary education sector. This evidence review on the value of sport and physical activity for Scottish Student Sport and supported by **sportscotland** provides a timely mechanism to collate and synthesise available knowledge to inform future work.

The tertiary education sector refers to institutions offering teaching and learning at post-secondary level education. Tertiary education institutions teach further and higher (third) level knowledge and skills and include universities, colleges, and technical training institutions. In the UK, the tertiary sector includes further education through traditional academic and vocational training in college environments, and higher education which is taken to mean undergraduate and postgraduate teaching and research. Scottish Funding Council (SFC, 2013) and Higher Education Statistics Agency data (HESA, 2013) reports total numbers of student, for the 2011-2012 period in Universities to be



179, 920 (FTE) and in Colleges, 171,321 (FTE). In the year 2011-2012 there were a total of 351,241 (FTE) students in the Scottish tertiary education sector.

In this review we recognise that a variety of factors affect the impact and experience of sport and physical activity in tertiary education including: national sports strategies; strategic commitment to sport within different types of tertiary education institution; varying funding streams and income generation; access to and quality of facilities; workforce capacity; partnership arrangements; the balance of curriculum and extracurricular provision; and the place and status of enrichment or recreational programmes and performance sport activities (Taylor, 2012). The organisation, structure and overall governance of tertiary education in Scotland are shaped by wider and developing Scottish Government policy (see for example Griggs, 2011). There is, then, a complex environment for sport and physical activity provision in the Scottish tertiary education sector, but one which can be better understood through this type of evidence review.

In addition to increasing understanding of the contribution of sport and physical activity to health and well-being, employability, academic attainment, inclusion and identity, and sociability, of young people in tertiary education, this evidence review also identifies the most effective strategies for providing tertiary education students with high quality, attractive, sustainable sport and physical activity that can foster positive experiences from sport. This evidence review gives an opportunity to make recommendations that can inform the sector, and Scottish Student Sport on how best to support and develop this agenda.

The terms of this evidence review of UK and worldwide data recognise the potential value of sport and physical activity within tertiary education as a contributor to health and wellbeing, employability, academic attainment, sociability, and inclusion and identity. There are however challenges to realising these benefits in full, as the 16+ age group is characterised by significant rates of drop out from sport and physical activity across the UK. The tertiary education environment is also central to the work of Scottish Student Sport in encouraging more students to be more active more often. The review therefore sits at the juncture of a number of policy priorities and has the potential to inform multiple areas of work.

THE REVIEW PROCESS

Approach

Evidence on the contribution of sport and physical activity to tertiary education has the potential to inform a substantial and significant target audience and to have wide application within the tertiary education sector. It was therefore important that this review, undertaken within a relatively short timescale, employed the most effective and appropriate approaches available within the resources allocated in order to provide *the best possible and most usable evidence on the value of sport and physical activity in tertiary education for the longer-term work in this area*. Within the project timescales, a rigorous and systematic approach, drawing on the principles of systematic review, was applied to produce a quality evidence appraisal of literature, policy and related 'grey' literature. This method employed an Evidence review Panel, who articulated the scope of the review, defined a systematic search strategy, and appraised the relevance and quality of the best evidence. The result is a synthesis of *best evidence* on the value of sport and physical activity in the tertiary sector. The review was conducted in accordance with the principles advocated by the Economic and Social Research Council's (ESRC) *Evidence Network* (Popay et al., 2006) (for further details of the approach see Appendix 3).

The Evidence Review Panel

Within our research strategy we used an Evidence review Panel consisting of the BC•SHaW and HERG academic team to advise on protocols and search criteria, to consult on inclusion / exclusion criteria and assess the quality of the research reviewed, and a Scottish Student Sport / **sportscotland** team to advise on context and support the collection of relevant grey literature. The relevance of searched literature for synthesising *best evidence* on the value of sport and physical activity in the tertiary sector was assessed in relation to the stated indicative themes: physical and mental health and wellbeing; employability; supporting academic attainment; inclusion and identity; and sociability. We additionally included evidence relating to the management and delivery of sport programmes relevant to the tertiary sector. These studies offer additional value as sources of guidance for policy making and practice. Our approach, then, employed expert input that assisted in identifying sources of grey literature that might not be readily available in searching peer-reviewed literature (Lefevbre and Clark, 2001).

Scope of the review

Given the relatively short time-scale for this review, the diverse range of themes and, therefore, the extent of the potential sources of evidence, two key questions guided our search and review work:

1. What is the impact of sport and physical activity in relation to health, employability, academic achievement, inclusion and identity, and social networks/sociability in tertiary education?
2. What factors shape the implementation of effective sport and physical activity programmes in tertiary education?

Search terms and protocol

An inception meeting between key members of the evaluation team and representatives from Scottish Student Sport and **sportscotland** identified the scope of the evidence review, outlined initial search terms and identified key policy documents and grey literature. The first meetings of the Brunel evidence review panel refined the key search terms and identified relevant databases prior to beginning exploratory searches and identifying further relevant grey literature. After refinement, the following search protocol was used in this evidence review.

<i>Databases</i>	Cochrane Scopus EBSCO (inc. Academic Search Complete, Business Source Premier, CINAHL Plus, PsycARTICLES, PsycINFO, SPORTDiscus with Full Text, MEDLINE) British Education Index, ScienceDirect ERIC Taylor & Francis.
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Primary search protocol used across the databases

<i>Date range</i>	January 2003 – December 2013
<i>Language filter</i>	English Language only
<i>Geographical exclusions</i>	NOT USA (studies from the USA were excluded on the basis that “non-professional sport in the US is strongly related with high school and college attendance, whereas in other countries sport is mainly an outside school activity performed in sports clubs or public sport sites. Thus, it is unknown if results from the US can be generalized or if they are caused by the institutional setting.” Pfeifer and Cornelijßen, 2010: 94). USA studies that employed a quality method, included the 16-19 year age group and were particularly relevant to the theme under investigation were included.
<i>Common search terms</i>	(sport OR "physical activity" OR "exercise") AND (student OR youth OR teen*) AND education AND academic
<i>OR</i>	
<i>Themed search terms:</i>	the common search terms above were combined with the following for theme-specific searches of each database: <u>physical health</u> : health or fitness <u>mental health</u> : mental or psych* or cognit* <u>employability</u> : employ* <u>academic achievement</u> : achieve* ¹ OR attain* <u>inclusion and identity</u> : inclus* or ident* <u>social networks / sociability</u> : commun* or social* or cultur*

¹ The * symbol is a ‘wildcard’ so the database finds all forms of the word or word part e.g. the term attain* will include attain, attainment, attaining

Search outcomes and review process

The search terms and protocol returned 4, 219 sources. In the first stage of review, two reviewers assessed all sources on the basis of their *titles* for their suitability for inclusion. In total 79 papers were selected using the following inclusion criteria: (1) study population of young people in tertiary education (2) sport and physical activity as a main intervention component (3) intervention outcome of the value of sport or PA in relation to one or more of the review variables (health, employability, academic attainment, inclusion and identity, sociability/social networks (4) *best quality* evidence based on study age, quality of research design, size of population, generalizability and peer review. We included studies which provided evidence of effective implementation strategies for sport and physical activity. We predominantly excluded studies that were USA focused. We excluded studies which used only the school Physical Education curriculum as an intervention strategy or solely targeted the U16 age group.

In the second stage of review, two reviewers assessed all sources on the basis of abstracts for their suitability for inclusion. This filtering process resulted in 27 full text articles being selected for review. 26 full text articles were obtained and 1 was unavailable.

At the third stage, 26 full text articles were reviewed independently by both reviewers. There were some discrepancies resulting from the inclusion process at the stage of full text review in relation to the health theme. All included sources on physical and mental health provided evidence for the known physical and mental health benefits of regular physical activity; however, the aim of this evidence review was to identify evidence of the value of sport and physical activity to physical and mental health in the **tertiary education sector** rather than to include already known and compelling evidence for the health benefits of physical activity in the general population. Therefore after discussion with the evidence review panel all of these health sources were excluded from this evidence review as they did not provide evidence specific to the tertiary education sector.

The final number of included sources was 10 (Table 1), relating to the following themes of this review:

- health (physical and mental): 0
- employability: 2²
- academic achievement: 3
- social networks / sociability: 0
- inclusion and identity: 2
- sport programming/implementation: 3

² the Sports Industry Research Centre at Sheffield Hallam University also ran a search using our search terms for this theme on the DCSM CASE database. No relevant returns were made.

Table 1: Overview of the systematic review process

Articles retrieved in the searches:	4219
Articles excluded on the basis of title:	4140
Abstracts reviewed	79
Papers excluded on the basis of abstract	52
Full text articles accessed for review	26 (+1 unavailable)
Articles excluded on the basis of full text review ³	19
Number of full text sources included in the review	10

The evidence review panel discussed significant sources of literature that could contribute to the review that would not be available through the primary search strategy. A number of sources of grey literature relating to Scottish tertiary education policy / statements which refer to sport and physical activity and Scottish sport policies and statements were provided by Scottish Student Sport and **sportscotland**. The Brunel Review Panel identified relevant grey literature in the form of reports and evaluations of national sport programmes including tertiary education ones (UK based), and UK reviews on sport, physical activity and health. Further grey sources were included where they informed particular themes of this evidence review.

Table 2 below provides an overview of the nature of the evidence in each of the sources and an indication of the quality of the research. Due to the short time-scales for this review and the wide range of themes addressed, we followed a *best quality* evidence approach based on study age, quality of research design, size of population, generalizability and peer review. Most recent, large scale randomised controlled trials published in high ranking outlets would be at the top of the hierarchy of evidence in this approach and, therefore, most likely to be included in this review. However, we are mindful that some important questions about the value of sport and physical activity cannot be answered by the use of randomised controlled trials. In our narrative synthesis we, therefore, include wider discussion of relevant grey literature where appropriate. Table 3 provides an overview of the grey literature included in this review.

³ Sources on the known and compelling evidence for the health benefits of physical activity in the general population.

Table 2: Summary of included sources and quality appraisal

AUTHOR (DATE)	PUBLICATION	TOPIC / THEME	LOCATION	EVIDENCE TYPE
Burnett (2010)	Refereed Journal	Employability	South Africa	Primary Research (Questionnaires)
Andropoulis et al. (2008)	Refereed Journal	Employability	USA	Primary Research (Questionnaires)
Rees & Sabia (2010)	Refereed Journal	Academic Attainment	USA	Secondary analysis
Pfeifer & Cornelißzen (2010)	Refereed Journal	Academic Attainment	Germany	Secondary Analysis
Shulruf (2011)	Refereed Journal	Academic Attainment	USA	Systematic Review and Meta-Analysis
Tieu et al. (2010)	Refereed Journal	Identity and Inclusion	Canada	Primary research (Questionnaires)
Bailey (2005)	Refereed Journal	Identity and Inclusion	Worldwide	Narrative Review of Literature.
Priest et al. (2008)	Cochrane Review	Implementation of sport / PA programmes	Worldwide	Systematic Review (Cochrane)
Foster et al. (2005)	Cochrane Review	Implementation of sport / PA programmes	Worldwide	Systematic Review (Cochrane)
Hayes et al. (2012)	Cochrane Review	Implementation of sport / PA programmes	Worldwide	Systematic Review (Cochrane)

Table 3: Summary of included grey literature

AUTHOR (DATE)	DOCUMENT FORMAT	TOPIC / THEME	LOCATION	EVIDENCE TYPE
Cavill et al., (2012)	Rapid Review of Research	Health	UK	Grey literature
Harvey (2013)	Research Paper	Employability	UK	Grey literature
Allen et al., (2013)	Report	Employability	UK	Grey literature
Weed et al., (2009)	Systematic Review	Social Networks / Sociability	Worldwide	Grey literature
Mansfield et al., (2012)	Evaluation Report	Implementation of sport / PA programmes	England	Grey literature

EVIDENCE ON THE VALUE OF SPORT AND PHYSICAL ACTIVITY IN THE TERTIARY EDUCATION SECTOR: NARRATIVE SYNTHESIS OF RESULTS

This section of the report constitutes the narrative synthesis of evidence (Popay et al., 2006). It draws together evidence from multiple studies included through our systematic search protocol as well as a range of grey sources. We explain the value of sport and physical activity in tertiary education across the themes identified in the project brief. Some of the studies are themselves systematic reviews and, thus, some of our work constitutes a review of existing systematic reviews.

The Evidence on Sport, Physical Activity and Health

Background: the case for physical activity for health

No sources from the primary literature search were included for full text review on the value of sport and physical activity for health in tertiary education. The aim of this review was to identify evidence of the value of sport and physical activity to physical and mental health in the **tertiary education sector** rather than to include all already known and compelling evidence for the health benefits of physical activity in the general population. However, some background to the evidence for the value of physical activity for health is provided here prior to a discussion of grey literature evaluating the contribution of sport to health outcomes. Such background literature provides an important platform for shaping future strategies for sport and physical activity in the Scottish tertiary education sector.

There is a well-established body of evidence for the health benefits of physical activity. Such research evidence has been summarised and presented in key government white papers, Chief Medical Officer (CMO) Reports and national guidelines for physical activity. The most recent UK guidelines for physical activity (SASA, 2011) were issued from the CMOs of Scotland, England, Northern Ireland and Wales. They emphasise the benefits of daily activity, combining a variety of types and intensities, and the avoidance of extended periods of sedentary behaviour in developing and maintaining health and fitness in cardio-respiratory function, muscular strength and endurance, flexibility and body composition. There are similar global recommendations on physical activity for health (WHO, 2010). These recommendations are underpinned by strong evidence to show that participation in physical activity is associated with prevention and treatment of some diseases and conditions including cardiovascular disease, some cancers, diabetes mellitus, and osteoporosis, and is an effective intervention for improved mental health and wellbeing. It has been summarized that “there is now compelling scientific evidence that increased levels of physical activity can bring wide-ranging health benefits. These benefits can extend beyond physical health to include other positive impacts relating to mental health and personal development” (Priest et al., 2008: 1). Moreover, “not taking enough physical activity leads to an increased risk of a number of chronic diseases including coronary heart disease. Regular physical activity can reduce this risk and also provide other physical and possibly mental health benefits” (Foster et al., 2005: 2)

Sport is a form of physical activity (Scottish Executive, 2003) Sport has the potential to make a contribution to overall levels of physical activity and to improved physical and mental health outcomes. Two systematic reviews have focused separately on understanding the effectiveness of

sport and physical activity interventions and are reviewed in detail in the later sections of this report (see Foster et al 2005; Priest et al. 2008).

Summary of grey literature on sport and health

One important source of grey literature was included in this review in understanding the value of sport and physical activity on physical and mental health in the tertiary education sector. Cavill et al's. (2012) review of research and practice on improving health through *participation* in sport identifies that the evidence base for the contribution of sport to physical activity and health is under-developed and relatively weak. A rapid purposive review of research on health and sport participation was used by Cavill et al. (2012) and identified 14 relevant sources: 3 systematic reviews from the Cochrane Collaborative Reviews; 6 studies on community-based programmes of intervention; 2 group-based intervention studies; and 3 face-to-face counselling intervention studies. One of the face-to-face studies and both of the group-based interventions are excluded from this review as they fall outside of our date limits being conducted in 1999, 1987, and 2000. The remaining 11 sources are reviewed below.

The Cochrane collaborative reviews identified by Cavill et al. (2012) include Priest et al.'s (2008: 1) key finding that 'despite a thorough review of the published and unpublished literature, we found no rigorous studies evaluating the effects of interventions organised through sporting organisations to increase participation in sport'. One Cochrane review on community wide interventions for increasing physical activity (Baker et al., 2010) included evidence from cluster randomized controlled trials, randomized controlled trials (RCT), quasi-experimental designs which used a control population for comparison, interrupted time-series (ITS) studies, and prospective controlled cohort studies (PCCS) with 6 month follow-up. The review concluded that due to methodological weaknesses and inconsistent findings it was not possible to claim that multiple intervention strategies at a community level can increase population level physical activity. One Cochrane review on general interventions for physical activity provided evidence from randomised controlled trials of the effectiveness of physical activity interventions (Foster et al., 2005). The authors concluded that there was a moderate effect of physical activity interventions on health outcomes specifically in terms of: self-reported levels of physical activity; achieving a predetermined level of physical activity; and achieving a cardio-respiratory fitness goal.

Six community-based RCTS or cluster RCTS which aimed to increase sport participation or employed a project in collaboration with a sport organisation were reviewed by Cavill et al. (2012). One of these was focused on school age children and, hence, was excluded from this review. The five studies of adults showed no overall statistically significant changes in physical activity. One of the studies showed a significant increase in physical activity amongst men but not for women. (Lupton, 1993). Two other studies showed non-significant increases in women (Brown et al., 2003; Wendell Vos et al., 2009). In the Finnmark Intervention study sport interventions in a small Nordic community resulted in a significant increase in physical activity for men only - six years post intervention (Lupton, 2003). Brown et al. (2003) reported on the Rockhampton (Australia) 10,000 steps project delivered through sports organisations with an emphasis on walking. A controlled study design was employed which found an increase in the number of females meeting recommended physical activity guidelines (150 minutes / week) but no increase for men. Questions over the quality of the

research design were raised as baseline data for the control community showed them to be significantly more active than the intervention community. At two years follow up there was no significant difference between the control and intervention communities. Wendel-Vos's (2009) study of a regional cardiovascular programme in the Netherlands reported that total leisure time physical activity decreased between baseline and 5 year follow-up. No difference between the control group and the intervention group was found for men. For women, the reduction in the intervention group was less than for the control group.

Two studies identified by Cavill et al (2012) and included in this review reported on the effectiveness of professional counselling with support from a sport or exercise instructor for sport or physical activity participation. Elley's (2003) study in New Zealand provided motivational counselling from a GP, written recommendation for physical activities, 3 motivational interviewing sessions from an exercise specialist, and written instructions every 3 months. Compared to the control group, the intervention group showed a significant increase in physical activity levels. The study of highest quality included in this appraisal of evidence for the health-value of sport and physical activity comes from Petrella et al. (2003). The study evaluated a multiple intervention strategy which included a preliminary step test (fitness assessment), physician led counselling, target heart rate goal, and a physical activity diary. The control group received the intervention without the target heart rate goal. The use of target heart rate goal was found to be an effective component of physical activity interventions. There was an overall significant increase in cardio-respiratory fitness in participants at 6 months follow up with a further increase at 12 months. Irrespective of age, gender, BMI >32 and having more than 2 chronic health conditions, participants in the intervention arm showed increases in cardio-respiratory fitness compared to the control group.

The Evidence on Sport, Physical Activity and Employability

Background: tertiary education, employability and employment

There is a long-standing and on-going set of debates about the relationship between tertiary education, employability and employment as well as about the definition and conceptualisation of terms. Employment refers to the acquisition of a job, whereas employability refers to achievements and skills and the potential to obtain a job (Yorke, 2006). In critical academic circles the concept of employability has been claimed to be an empty one and questions have been raised about the potential of tertiary education to develop employability. There is no guarantee that employability developed in tertiary education settings or any other environment will convert into employment. Employability reflects the relative chances a person has of finding employment and those chances are not the same for all students. However, employability remains an important part of the political agenda and tertiary education provides a range of environments in which students have opportunities to develop both subject-specific knowledge and skills and more generic skills and qualities such as communication, team-work, problem-solving and time management that employers value (Yorke, 2006; Harvey et al. 2013).

Evidence for the value of sport and physical activity in employability

The evidence for the relationship between sport, physical activity and employability is extremely limited. This systematic review identified 2 relevant studies for inclusion but both take a single case study approach and would be categorised as low quality in our review process. Burnett (2010) analysed questionnaire data collected by the University of Johannesburg Sport Bureau from their competitive and high performance sport participation programmes with the aim of identifying the factors that influenced students to choose the institution for their professional/career preparation as elite athletes. The report has a number of implications related to employability and employment. In terms of employment as an elite athlete it is primarily the opportunities afforded by the University for developing athletic prowess (subject-specific employability skills) that attract potential students. These include athletic excellence and success, facilities and coaching staff. Whilst sport career related demands dominate decision making at the point of selecting the University and through the first year, future career developments beyond being a professional athlete also influence selection decisions. Alongside athletic status, academic programmes and characteristics were significant to students on athletic programmes. Athletic career development was found to be less narrowly associated with a singular focus on performance but marked by holistic development (in knowledge and skills), integration with student life and academic success. Burnett's (2010: 63) study also notes the significance of sport as "a crucial strategic venture for higher education institutions using sport as a marketing tool, branding instrument and for status advancement". The status of higher education institutions in research, high-profile academic programmes and sporting success underpin recruitment and retention and may be associated with employment rates.

Andreopoulos et al. (2008) used a questionnaire survey of University students in the USA to examine employment not as an outcome of tertiary education but as a feature of the student experience and in relation to the impact of employment on academic attainment. Additionally this study examined the impact of engagement in physical activity on academic attainment. While this is a study conducted in the USA, its focus on the impact of employment and physical activity during higher education is significant in understanding the complexities of employability, employment and the impact of physical activity on the academic experience. The study reports that academic attainment is not negatively affected by employment/work activities. Additionally, it was reported that despite the claims that exercise leads to improvements in mental acuity, physical activity did not have a positive impact on academic attainment.

Summary of relevant grey literature on employability

This review did not find any relevant grey literature on the specific relationship between sport, physical activity and employability⁴ within the defined timescales of the project. There is an emerging field of research and policy development in the area of tertiary education and employability more broadly and we include discussion of Harvey's (2013) research paper as relevant to this review.

Harvey's (2013) paper on employability and diversity draws on two research reports on employability, careers and diversity in higher education (Harvey *et al.*, 2002; Morey, *et al.*, 2003).

⁴ We acknowledge the support of colleagues at the Sport Industry Research Centre at Sheffield Hallam University who searched the DCMS CASE database using our search terms for this theme and note that no relevant sources of grey material were found in that domain search.

Harvey (2013) reports on recent and rapid developments in employability training in higher education alongside collaborative initiatives with employers and the development of strategic approaches to employability at institutional level. Developments in these areas of employability are uneven and not always successful but there is some evidence of effectiveness of employability initiatives in relation to: embedding employability into the curriculum, prioritising the role of central services, developing relationships with employers and developing quality work experience opportunities. However, the paper reports that little analysis has been conducted on the impact of employability development in the university sector. Furthermore there are no adequate employability performance indicators and little effective targeted work reflecting socio-demographic and cultural diversity, and inequality in employability. Harvey (2013) identifies a model of graduate employability development that illustrates the complexities of employability which may usefully contribute to policy and practice approaches to the role of sport and physical activity in employability and employment (see Appendix 1).

Subsequent to the completion of searches for this evidence review, the Sport Industry Research Centre (SIRC) published a report on *The Impact of Engagement in Sport on Graduate Employability* (Allen et al., 2013). The report includes a review of literature on sport and graduate employability and findings of primary and secondary research. The literature review in the SIRC report supports the findings of this review that evidence for the value of sport and employability for graduates is limited and remains “anecdotal” (p.5)

Through secondary analysis of the Active People Survey 6, the report confirms the relationship between sport participation and higher income for graduates by illustrating that graduates currently participating in sport have higher incomes than those who do not. In other words there is a correlation between *current* higher income and *current* sport participation, among those who have *previously* been students. Allen et al. (2103) note that secondary analysis of cross sectional data sets cannot determine causal relationships between sport participation and graduate employment; it is therefore important to recognise, as the authors of the report do, that this analysis does not identify a causal link; rather, it establishes associations which require additional data collection and analysis to investigate whether such a relationship appears to exist.

The SIRC report presents findings of primary research conducted through an on-line survey of graduates (n=5, 838). The sample was quite equally split between males (51.3%) and females (48.7%) and was predominantly ethnically White (87.5%). The findings illustrate that graduates who had participated in sport at university now had a personal income greater than those who attended the gym only or did not engage in sport. Graduates who had participated in university sport also had a higher annual household income than those who had not participated with a calculated premium for sport participation of +£6,344 per annum. Graduates who had participated in university sport and also engaged in volunteering activity reported a further premium in annual household income of +£2,704 per annum. Graduates who had not participated in sport or engaged in other extra-curricular activities are reported by Allen et al. (2013) to be the lowest earners and the most likely to have experienced periods of unemployment. Time constraints on the research limited control on survey implementation. The respondent sample was not representative of the student population with a large proportion of respondents coming from a single university, and the distribution across disciplines was uneven. At the analysis stage, correlations between sport participation and

individual characteristics associated with income variation (including gender and ethnicity) had not been explored at the time of this evidence review but may be undertaken in future.

From the employer survey (n=112) the SIRC study reported positive accounts from employers about the added value of sport participation in relation to the development of skills and attributes such as team working and leadership. A number of employers described how they actively sought evidence of the development of skills and attributes through sport participation in recruitment processes. The findings of the research focused on universities' perspectives revealed little correlation between the Destination of Leavers from Higher Education (DLHE) survey and performance of university teams in the BUCS League tables. Telephone interview data with university executives (n=13) revealed that the sport offer is significant to the student experience, recruitment and retention and to marketing of the university.

The Evidence on Sport, Physical Activity and Academic Achievement

Background: sport, physical activity and academic achievement

There is an established policy-led focus on understanding which interventions work best to develop aspirations, attitudes and behaviours that might enhance academic attainment in school-age children and in school environments. The positive association between regular physical activity or sport participation and academic attainment in schools is commonly claimed but evidence for the causal relationships between them have not been forthcoming. A recent report by the Joseph Rowntree Foundation concluded that it was not possible to identify causal relationships between children's and parents' aspirations, attitudes and behaviours and academic attainment because studies have not aimed to specifically raise attainment and have not included robust evaluation methods. Moreover, the evidence of the contribution for extra-curricular activities like sport and physical activity is mixed and further investigation is required to strengthen the evidence base (Carter-Wall and Whitfield, 2012).

Evidence for the value of sport and physical activity in academic achievement

Three sources focusing on the value of sport, physical activity and academic achievement were included in this review. One of these was a study conducted in the USA (Rees and Sabia, 2010), but is included because of the quality of its method - secondary analysis of longitudinal data. One other study from the USA focuses on secondary school extracurricular activity but is included because it is not confined to curriculum based physical education, includes the 13-19 year age group, and uses a systematic review method. We begin with a review of the third, European source on the relationship between sports participation and academic performance.

Pfeifer and Cornelißen (2010) report on secondary analysis of the German Socio-Economic Panel (GSOEP) to analyse the impact of sports participation on academic performance. The study found that the chances of attaining a university degree as opposed to a vocational qualification or no professional degree are increased due to child/adolescent sport participation by about 5.3% for men and 4.7% for women. Findings concluded that participation in sports activities have "significant

positive effects on academic attainment” (p.100) because sport enables the development of effective allocation of time decisions and higher educational productivity. This was not found to be the case for involvement in high level sport which can offset the trends because it is so time consuming.

Rees and Sabia (2010) conducted secondary analysis of the National Longitudinal Study of Adolescent Health (USA). The aim of the work was to explore further the claims that young people who participate in sports perform better than those who do not. More specifically the studies employed a number of statistical techniques to examine whether any positive association between sports participation and academic achievement is the result of academic spill-overs or due to other unobservable factors. Findings varied according to statistical technique used. In calculations which did not control for unobservable factors, sports participation was positively correlated with increased GPA in maths and English and the association was greater with increasing frequency of sport played. In statistical analysis that controlled for fixed effects such as motivation, future orientation and self-discipline, a much smaller but still positive correlation between sport participation and academic achievement as found. However, the findings showed little evidence of positive spill-overs between sport participation and academic achievement. Rees and Sabia (2010) concluded that previous studies reporting positive academic spill-overs from sports participation may be overstated due to unmeasured heterogeneity. The one outcome for which Rees and Sabia (2010) assert there is clear evidence of positive spill-overs from sports involvement is aspiration to attend college.

Shulruf (2010) conducted a literature review and meta-analysis to investigate whether extra-curricular activity (ECA) improves educational outcomes in young people (13-19 years). Extra-curricular activities were categorised as: sports, academic club/journalism, performing arts/cheerleading, student council/vocational club, mentoring, non-sport activities, and other extra-curricular. Twenty-nine studies were included in the initial stages of this review of which 28 were USA focused and excluded from a detailed reading. The remaining study was conducted in the UK. The overall findings reported associations between participation in extra-curricular activity and educational outcomes (GPA, attitude to school, self-concept, aspirations to further education) but causal effects could not be claimed. The study concluded that there is a lack of evidence supporting causal effects and that the reported effects of extra-curricular activity on educational outcomes in the studies in the review were due to methodological limitations. Meaningful effect sizes were found for the effect of general ECA on aspiration to tertiary studies, and the effect of student council participation on GPA. Student participation in sports is associated with retention in educational terms but the correlational evidence does not establish causation. Rather it identifies associations which require additional investigation.

The Evidence on Sport, Physical Activity, Identity and Inclusion

Background to the value of sport and physical activity for identity and inclusion

There are extensive and well-established bodies of literature that focus on the complex relationships between sport and physical activity and issues of identity and inclusion. Such literature is dominated by sociological and psychological research. Sociological accounts of identity and inclusion in sport

and physical activity have variously and critically explored sport and physical activity as sites for the construction of a sense of self, the accommodation of and resistance to dominant identity characteristics (e.g. gender, race, disability) and as spaces where a range of participants experience inclusive and exclusive social structures and processes. The findings of such research are important in understanding sport, physical activity and social life. However, they are less relevant to the task of this evidence review because little of the research is directly focused on tertiary education and most employ methods which are small scale and are not intended to allow results to be generalized. In the field of psychology, there is an extensive literature which examines relationships between sport participation and aspects of mental / cognitive function which have some bearing on identity. However, such literature is dominated by a focus on theories of individual motivation which are less relevant to policy and strategy implications of the value of sport and physical activity. Variations in individual motivations and intentions to participate in sport and physical activity are wide ranging, diverse and changeable. Considered in isolation from an understanding of context they do not provide a fully informed theoretical approach to effective policy making.

Evidence for the value of sport and physical activity to identity and inclusion

Two sources are included as evidence in this section of our review (Tieu et al., 2010; Bailey, 2005). One source directly relates to the value of sport and physical activity to identity and inclusion in the tertiary education sector. Tieu et al. (2010) examined the relationships between out of class activity structure and transition from high school to University. Using a questionnaire as the primary research tool, the sample in this study was drawn from five Canadian Universities. From the 9780 students invited to participate, 797 responses were received. Results revealed that involvement in preferred activities which were more structured was related to a smoother university transition experience and thus had a positive effect on identity and inclusion. Some of the significant correlations found only accounted for a small amount of variance. More structured and preferred activities tended to provide participants with a high-quality experience which was enjoyable, meaningful and enriching. The authors concluded that transition to university is associated with changes in young adults' leisure activity participation. In order to counter negative experiences of transitioning to University it is important to determine what types of activity involvement are advantageous, and what will bring the most personal benefit to transition experiences but also in other areas of student life such as academic achievement, critical thinking skills, emotional and psychological well-being.

Bailey (2005) conducted a narrative review of literature examining the evidence regarding the outcomes of the participation of children and young people in physical education and sport. This review included literature that focused on sport beyond the curriculum and in the 16-19 age group and considered the role of sport in the development of social capital as well as social inclusion. The study examined a number of themes with which sport participation has been associated. It agrees with others that there is compelling evidence for the contribution of physical activity to physical and mental health. However in relation to other outcomes such as cognitive and academic development, crime reduction, truancy and disaffection, some of which are related to inclusion and identity, it found a lack of evidence. Bailey (2005: 7) argues "it is evident that much more empirical research is necessary if the benefits of sporting participation for young people and society are to become much

more than a theoretical aspiration". The review supports the argument for a more objective framework and empirical basis for claims about the value of sport.

The Evidence on Sport, Physical Activity and Social Networks / Sociability

Background to the value of sport and physical activity to social networks and sociability

Overlapping with conceptualisations of identity and inclusion, the idea of social networks and sociability is wide ranging. Related literature includes examination of psychological constructs such as self-esteem, confidence, group cohesion and leadership. In the field of socio-cultural studies sport and physical activity have been connected with a sense of belonging and meaningful experience. The timescales and scope of this review required a clear conceptualisation of 'social networks' and 'sociability' from the outset. It was agreed by the evidence review panel that the most relevant conceptual approach to the evidence review should focus on the idea of *communitas*. *Communitas* refers to a heightened sense of community belonging, cohesion and/or spirit or pride (Chalip, 2006).

Grey literature on the value of sport and physical activity to social networks and sociability

One grey source was included in informing a discussion of sport, physical activity and sociability. Weed et al. (2009) conducted a systematic review of the evidence base for developing a physical activity, sport and health legacy from the London 2012 Olympic and Paralympic Games. The scope of the review was wide ranging and focused on four key questions associated with: the evidence for a positive impact of sports events on wider participation and health improvement; the processes by which physical activity and sport participation are developed (leveraged) through sports events; the processes by which community engagement is developed through sports events; evidence of evaluations of development opportunities; and the contribution of promotional and media opportunities for development processes. Fifty-four sources were returned in the review for these themes. It is the sources connected to the evidence for the processes by which community engagement is developed through sports events that are relevant to this discussion of the value of sport and physical activity to social networks and sociability (24 sources). Of these 24 sources, 11 relate directly to the idea of festival and community or *communitas* as introduced in the background section above.

The literature in this field illustrates that the idea of 'festival' or communality or '*communitas*' (Chalip, 2006) is important in creating a broad awareness and sense that a significant event is taking place. A feeling of *communitas* engenders in people a desire to be a part of a large-scale event. Weed et al. (2009) argue that there is an opportunity to develop sport and physical activity participation through strategies that harness feelings of *communitas* from large-scale sporting events. Studies of volunteers at sport events support this argument and have found that volunteers were motivated by a connection and involvement with a special and unique event (Ralston et al., 2004; ICRC, 2003; Kim and Chalip, 2003). Emotional / affective ties are important in reinforcing a feeling of connection to a sport event (Kennedy et al., 2006). A type of psychic income has been identified in the way that people bond with sports, sports people, spaces and places (Crompton, 2004; Heere and James, 2007; Richie, 2000; Spavero and Chalip, 2007; Symons, 2002; Waitt, 2003).



Smith and Fox (2007) argue that leveraging a sense of belonging from sport events requires an event-themed approach that focuses on uniting neighbourhoods at a local level.

The Evidence on Implementation of effective sport and physical activity programmes in tertiary education

Background to the implementation of effective sport and physical activity programmes in tertiary education.

The terms of this evidence review recognise the potential value of sport and physical activity within tertiary education as a contributor to health and wellbeing, employability, academic attainment, sociability, inclusion and identity. There are challenges to realising these benefits in full, in the 16+ age group. This is a target group characterised by significant rates of drop out from sport and physical activity across the UK. It is also a target group marked by diversity in the wider social determinants of physical activity and sport engagement.

The tertiary education sector is a complex one. A variety of factors affect students' engagement in sport and physical activity including national sports strategies, strategic commitment to sport within different types of educational institutions, funding, access to facilities, the balance of curriculum and extracurricular provision and the place and status of enrichment activities in colleges and recreational programmes in universities. This presents a challenging environment for sport provision but one which can be better understood through evidence which can identify effective implementation strategies to increase the quantity and quality of sports and physical activity experiences for students.

Evidence for the implementation of effective sport and physical activity programmes in tertiary education.

Three studies included in this review provide varying levels of evidence for the implementation of effective sport and physical activity programmes. Foster et al's (2005) review of interventions for promoting physical activity included 29 randomised controlled trials. The scope of the review included analysis of the effectiveness of interventions in relation to self-reported physical activity and cardio-respiratory fitness and has already been referred to in our reporting of evidence for the case for physical activity and health. Two of Foster et al's. (2005) secondary objectives are specifically useful in informing strategies for effective programming: the effect of different levels of intervention, and the effect of different behavioural components of interventions (prescribed versus self-directed, and level of support). One paper included in the systematic review, Simons-Morton (2001), employed three different groups of intervention (control - advice, assistance and counselling) in a study of the effects of physical activity counselling. The control-advice group received physician advice on recommended levels of physical activity, referral to a health educator with materials and advice, and follow-up visits to the health educator with repeated advice. The assistance group received the control group intervention plus 30-40 minutes counselling from the health educator with a videotape and action plan, and follow up telephone calls, interactive mail, an electronic step counter, and monthly monitoring cards. The counselling group received the control and assistance intervention and bi-weekly telephone calls for 6 weeks, monthly calls for up to 12 months and behaviour change classes on healthy lifestyles. Women, not men, in the counselling group showed significant increases in fitness compared to the control participants. Foster et al. (2005) analysed the behavioural components of the studies in their review and concluded that due to variation in participants, interventions and outcomes (clinical and statistical heterogeneity) it was not possible to draw strong conclusions about which methods of physical activity are most effective and sustainable in encouraging specific groups of people to be more physically active. However, there was some evidence that professional advice and guidance and some on-going support can encourage people to participate in physical activities and be effective in developing short and mid-term physical activity engagement.

Priest et al. (2008) conducted a systematic review of the interventions implemented through sporting organisations for increasing participation in sport. The comprehensive review strategy was intended as a way to compare controlled studies. No studies meeting the inclusion criteria were found. The authors concluded that there were no rigorous studies evaluating the effects of interventions delivered through sporting organisations to increase participation.

Recent approaches to achieving health outcomes (of which sport and physical activity are a part) focus on inter-agency collaboration at local, regional and global levels. Hayes et al. (2012) conducted a systematic review to evaluate the effects of inter-agency collaboration between local health and local government agencies on programmes with health outcomes. The review examined evidence to show whether collaboration did or did not work when compared to existing standard service. The details of the studies included in the systematic review are less relevant to this evidence review than the overall findings concerning collaborative approaches to health outcome programmes in community, education and public health contexts. Hayes et al (2012) found no reliable evidence that

inter-agency collaboration between local health and local government agencies improves the effectiveness of health outcome orientated programmes compared to standard services. For collaborative partnership working to be effective, there is a need to agree goals, methods of working, monitoring and evaluation before implementation to protect programme fidelity and increase the potential for effectiveness.

Grey literature on the implementation of effective sport and physical activity programmes in tertiary education.

One source of grey literature is included in this review providing evidence on the implementation of effective sport and physical activity programmes in tertiary education. Mansfield et al. (2012) evaluated Sport England's 'Further Education Exchequer Pilot Project'. The evaluation examined the effectiveness of different delivery models for increasing FE students' participation in sport outside the curriculum. Overall participant numbers increased for all four project themes (19+, student-led, community links, and disability) over the three months of the Sport England Exchequer FE Pilot. There were also indications of sustained participation increases in the month following the official end of the projects. The evaluation found that existing networks of regionally-led FE sport provide a strong framework for growth and development, and that FE College sport staff have expert knowledge of effective delivery of FE student sport. Further understanding of the different structures and practices of existing key sport development stakeholders was advocated as a way to underpin work to bring stakeholders together to combine for future planning and delivery of FE sport. National, regional and local level strategies that consider short, medium and long term planning and delivery outcomes as well as appropriate monitoring and evaluation processes are required for effective FE sport provision. Delivery of sport for enrichment in FE needs to move beyond traditional sport provision to embrace innovative activities and delivery models to increase participation across the sector. Six areas of support were identified in the report as necessary for college staff to plan, deliver and monitor future FE sport to increase participation in the sector: (1) developing existing cross-College relationships to support effective delivery of FE sport; (2) developing local stakeholder networks with community clubs, NGBs, CSPs and LAs; (3) recognising potential for growth in FE sport for enrichment; (4) understanding challenges for FE students and staff in delivering sport for participation; (5) setting realistic outcomes for student and staff engagement with FE sport; (6) additional staffing by full time, college focused, professional sports personnel for managing development of FE sport.

CONCLUSION AND RECOMMENDATIONS

Sport and physical activity have the potential to contribute to a range of positive outcomes in tertiary education but there is an underdeveloped and weak empirical evidence base for the benefits of participation to health, employability, academic attainment, inclusion and identity and social networks. The strongest evidence is for the contribution of physical activity to improved health. There still remains limited evidence for the contribution of *sport* to physical activity and health. However, lack of evidence does not mean lack of effectiveness. This review took a *best evidence* approach, including sources on the basis of study age, quality of research design, size of population, generalizability and peer review. Such an approach privileges large scale randomised controlled trials published in high ranking publications. We recognise in this review that some significant questions about the value of sport and physical activity cannot be answered by controlled trial designs. Our discussion of relevant grey literature has illustrated some emerging debates about sport and health, graduate employability development, and the potential of sport to engender a sense of community that can make a contribution to understanding the value of sport and physical activity in the tertiary education sector.

The lack of evidence for the benefits of sport and physical activity across the indicative themes in this evidence review makes it difficult for organisations and institutions to develop clear strategies for future work in the tertiary education sector. This report offers a number of recommendations for improving the evidence base on the value of sport and physical activity in the tertiary education sector. Our recommendations are for sector-led collaborative approaches which draw on the existing expertise in the Scottish tertiary education sector. There is potential for the sector to develop a stronger evidence base for the value of sport and physical activity and our more detailed recommendations make suggestions for how this might be done.

In detail, our recommendations are as follows:

Sector-led Approaches to Building Evidence through Monitoring and Evaluation

Sport and physical activity is delivered within an established and cohesive organisational framework in the Scottish tertiary education sector and is managed, led and delivered by experts in the field. We recommend that the sector works to determine key priorities in developing the evidence for the value of sport and physical activity and to engage with a range of key stakeholders to incorporate collaborative approaches to monitoring, data collection and evaluation that can strengthen the evidence base.

Research quality is the key to a strong evidence base. Methods of research will differ according to the questions being asked, and in relation to time, financial and human resources. It is recommended that monitoring and evaluation is embedded into sport and physical activity programme design and delivery at an institutional level and is both process and outcome focused. Process evaluations might include focus group work and/or interviews with participants, coaches, instructors and managers. There would be scope to interview those in decision making positions in educational institutions to understand the structures by which sport and physical activity policies are implemented. There is scope to develop appropriate sport and physical activity outcome measures

that could be used in large scale collection of data (e.g. through on-line surveys) and/or analysis of existing data sets which might already include information on number of participants, participation frequency, number of volunteers, number of officials, and diversity of participants.

Building Evidence for Promoting Sport, Health and Wellbeing

The positive relationships between sport, physical activity, life-long participation and improved health should be a key message in programming and promotional work in the tertiary education sector. Existing programmes could develop methods for measuring effectiveness of sport and physical activity in improving health and wellbeing outcomes through objective approaches (e.g, using accelerometers or pedometers) and/or by using robust self-report questionnaires. Rigorous empirical studies should include adequate control groups and baseline and follow up data. In the absence of controlled studies, repeated measures should be included. Any sample selection should consider issues of size and representation. Process evaluations including detailed accounts of the context and the character of sport and physical activity programmes can make a significant contribution to the evidence base.

Developing Evidence on Sport and Graduate Employability

There is scope for the sector to develop evidence for the role of sport and physical activity in developing graduate employability. This might include attempts to measure the contribution of sport to: employment; recruitment and retention; student satisfaction with sport / physical activity as a preparation for work; and employers' perceptions of how sport prepares students for work. This could be conducted by using a range of qualitative and quantitative approaches including interviews, focus groups and on-line questionnaires. Understanding the relationship between sport and employability may also be advanced by determining what types of participation provide students with the most benefits in terms of employability. There is scope to conduct institutional level audits of participation that assesses who participates in different sports and asks questions about the contribution of participation to both employability and employment. University and College sport stakeholders could engage in projects that explicitly seek to use sport engagement to enhance graduate employability and produce case studies of those projects.

Developing and Evaluating Inclusive and Sustainable Sport and Physical Activity Programmes

Students in tertiary education are involved in a number of transitional experiences that can impact on their sport and physical activity engagement. We recommend that activity opportunities that are inclusive and encourage play and engagement in informal, supportive environments that foster a sense of confidence in physical activity should be developed and evaluated. A sense of community can be associated with sport and is significant in creating an enhanced sense of belonging as well as raising the profile of local activity programmes and events. A sense of community can also be used to develop and promote participation opportunities from national sports events and the forthcoming Commonwealth Games in Glasgow 2014 provides such an opportunity. There is scope



for the sector to develop sport programmes that harness different delivery models for increasing students' participation in sport and physical activity and reflect diversity in the tertiary education population including for example projects that focus on student-led initiatives, sport and physical activity for BME communities, the 19+ age group in Colleges, community linked programmes, and sport and physical activity for students with disabilities. Provision of a wide range of innovative, exciting and relevant sports and physical activities that are well organised, flexible, accessible and supported by expertise in instruction, coaching, administration, and/or officiating have the *most* potential to offer a meaningful and sustainable sport and physical activity experience for tertiary education students.



FURTHER INFORMATION AND CONTACT DETAILS

For information please direct initial queries to:

Dr. Louise Mansfield
BC•SHaW, School of Sport and Education, Brunel University,
Heinz Wolff Building, Uxbridge, Middlesex, UB8 3PH, UK

Email: louise.mansfield@brunel.ac.uk

Telephone: +44 (0) 1845 267561 (office)
+44 (0) 7824 646646 (mobile)

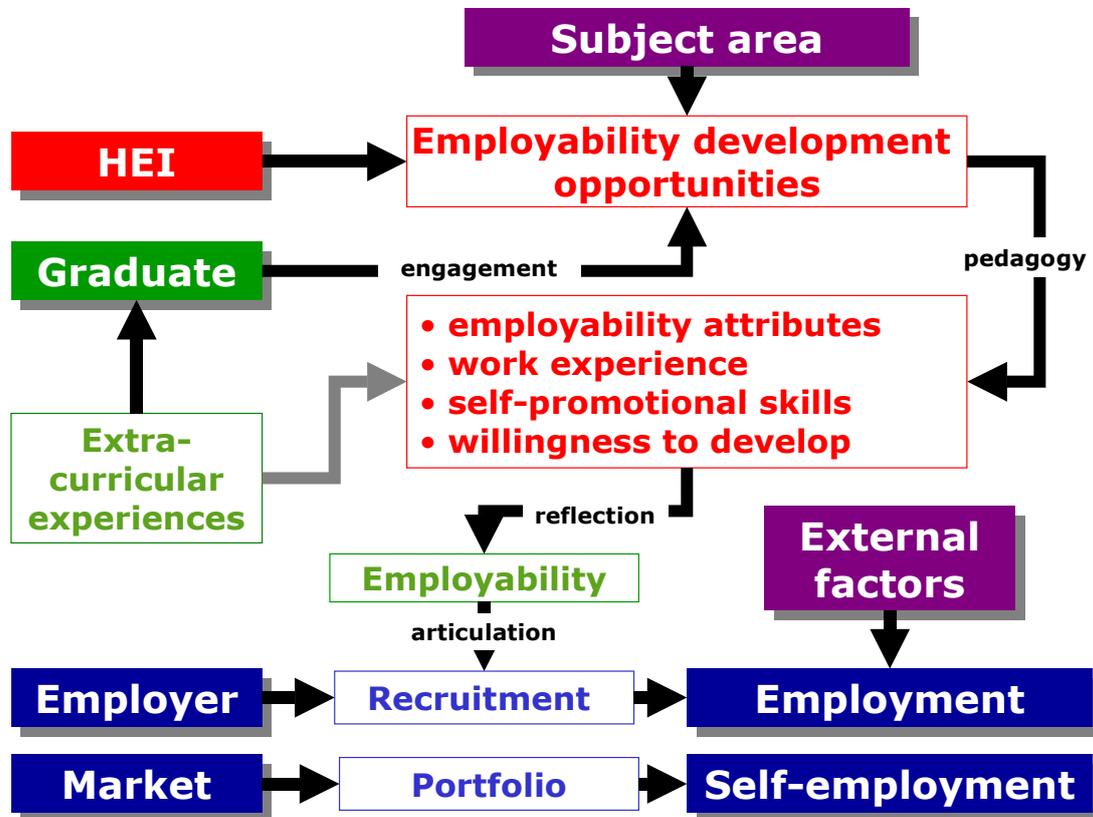
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APPENDIX 1: Harvey's (2013) Model of Graduate Employability Development



APPENDIX 2 THE EVIDENCE REVIEW SCHEDULE

The evidence review was undertaken in four overlapping phases

<i>Phase 1a, weeks 0-2 (February)</i>	introductory discussions with sportscotland , inception meeting of evidence review panel and initiation of exploratory searches
<i>Phase 1b, weeks 2-4 (February)</i>	project development meetings of evidence review panel to finalise search protocol and initiate and complete searches
<i>Phase 2, weeks 5-8 (March)</i>	initiation of evidence review and analysis procedures and on-going appraisal of search strategy
<i>Phase 3, weeks 9-12 (April)</i>	on-going evidence review and analysis procedures
<i>Phase 4, weeks 13-16 (May)</i>	completion of evidence analysis and reporting

Detail of the four research phases

<i>P1a: Weeks 0-2</i>	<i>Introductory discussions with sportscotland, inception meeting of evidence review panel and initiation of preliminary exploratory searches</i>
	<ul style="list-style-type: none"> • Introductory discussions with sportscotland to familiarise evidence review lead with background and context for project brief • Inception meeting of evidence review panel to define scope of review, define guiding questions in relation to key sportscotland outcomes, identify key search terms, identify relevant databases and policy documents and 'grey' literature • Initiate preliminary exploratory searches
<i>P1b: Weeks 2-4</i>	<i>Project development meetings of evidence review panel to finalise search protocol and initiate and complete searches</i>
	<ul style="list-style-type: none"> • Activities associated with assessing and refining exploratory searches • Identification of inclusion and exclusion criteria • Definition of search protocol • Activities associated with completing searches
<i>P2: Weeks 5-8,</i>	<i>Initiation of evidence review and analysis procedures and on-going appraisal of search strategy</i>
	<ul style="list-style-type: none"> • Meetings of evidence review panel to initiate analysis procedures • Activities associated with sampling, assessing relevance and quality, and inclusion and exclusion criteria • On-going appraisal of search strategy and protocol
<i>P3: Weeks 9-12</i>	<i>On-going evidence review and analysis procedures</i>
	<ul style="list-style-type: none"> • Meetings of evidence review panel to analyse evidence • On-going evidence analysis work
<i>P4: Weeks 13-16</i>	<i>Completion of evidence analysis and reporting</i>
	<ul style="list-style-type: none"> • Evidence analysis completion • Presentation of findings to sector leaders and sportscotland personnel at Scottish Student Sport Conference (June 2013) • Final report and executive summary (July 2013) • Workshop presentation to key sportscotland personnel and sector leaders (August 2013)

APPENDIX 3 THE SYSTEMATIC REVIEW PROCESS

Reviewing evidence to inform policy

The review was conducted in accordance with the principles advocated by the Economic and Social Research Council's (ESRC) *Evidence Network* (Popay et al., 2006). The Network was established in 2001 with the aim of enhancing and developing the evidence base for policy and practice in the social sciences. The Evidence Network has promoted the use of the Systematic Review approach as a way of bringing together research evidence and providing an overall appraisal of current knowledge that can be used to effectively inform policy and practice decisions. The Systematic Review approach overcomes the limits of the traditional, less structured literature review and provides improved methods for accessing, reviewing and analysing *best evidence* for policy decisions.

It is the Systematic Review method that has framed our approach to searching, analysing and synthesising the evidence on the value of sport and physical activity in tertiary education. Several differing systematic review methods exist. We employed methods which incorporate the type of narrative synthesis approach supported by ESRC guidance to establish a systematic and transparent synthesis procedure which includes techniques to avoid bias that can occur if unnecessary emphasis is placed on one study relative to another (Popay et al., 2006). This approach synthesised findings on a range of relevant themes by using words and text to provide evidence on the value of sport and physical activity in tertiary education. Our review procedures focused on objective, replicable, systematic and comprehensive searches of evidence and included a transparent audit trail of methods and processes (Coren and Fisher, 2006). Our approach also included a range of grey literature that might not be readily available in searching peer-reviewed literature. The incorporation of grey literature including conference papers, policy documents, and professional practice statements has been increasingly used in systematic review processes that have informed policy development in areas such as social care, education, urban regeneration and criminal justice, and can be considered as an additional way to ensure biases are reduced in the systematic review process.