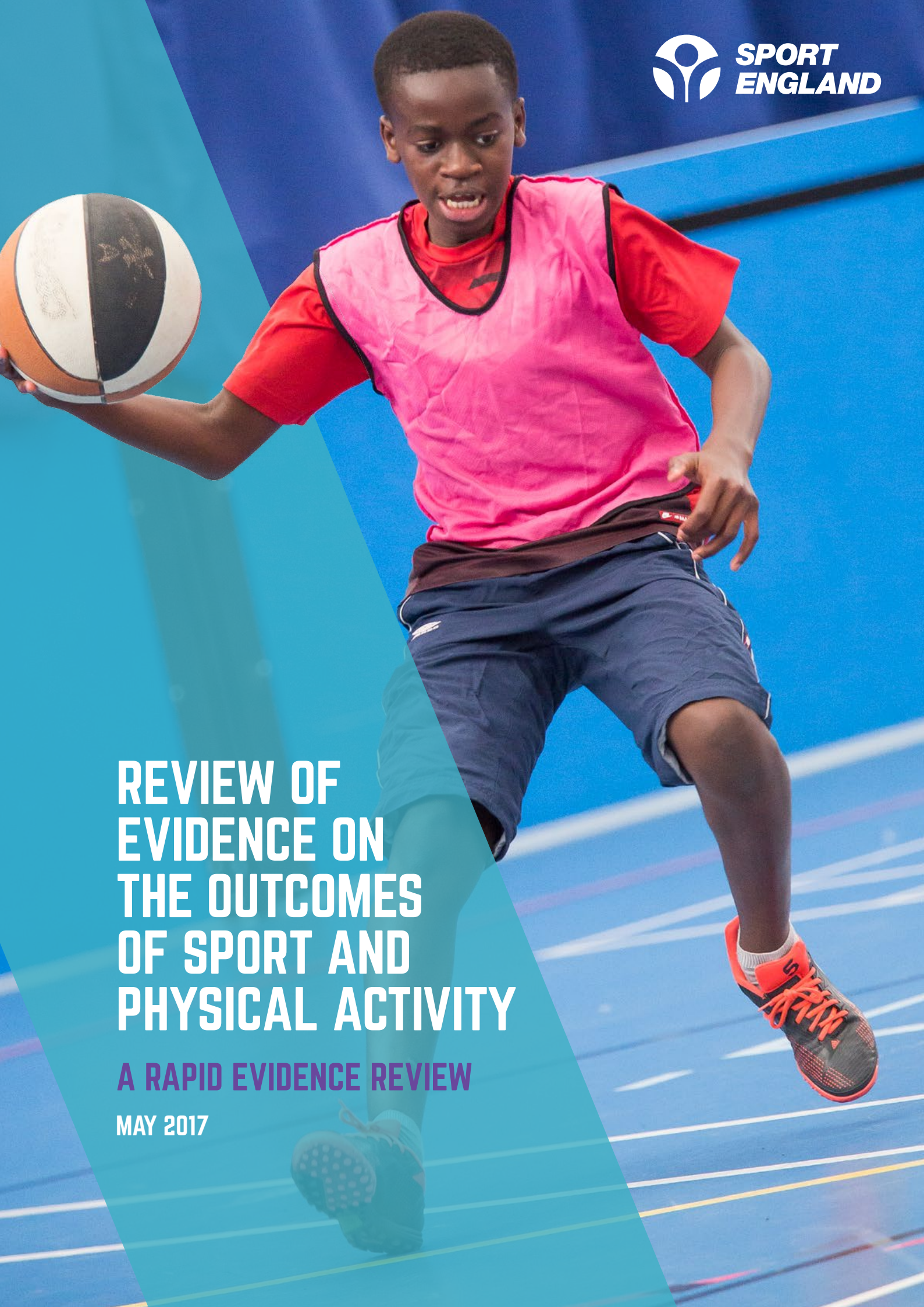


SPORT ENGLAND

# REVIEW OF EVIDENCE ON THE OUTCOMES OF SPORT AND PHYSICAL ACTIVITY

## A RAPID EVIDENCE REVIEW

MAY 2017

# CONTENTS

# EXECUTIVE SUMMARY

In 2016 we commissioned OPM to review the evidence base on the contribution of community sport and physical activity (participating, volunteering and spectating) to the five outcomes identified in Sporting Future, the Government's strategy for sport[1]. These are physical wellbeing, mental wellbeing, individual development, social and community development and economic development.

Our broad aim was to assess the evidence base with a view to demonstrating the contribution that sport and physical activity make to the outcomes, identifying what intervention characteristics are important for delivering outcomes, and stimulating further research and improved evaluation practice.

The specific objectives of the review were to:

- Collate evidence on how sport and physical activity contributes to the five outcomes.
- Identify the characteristics of successful interventions.
- Surface evidence on outcomes for different subgroups.
- Identify gaps in the current evidence base.

OPM conducted a rapid evidence review, identifying evidence via a database search and submissions from stakeholders in the sector. Eleven databases were searched and 129 items were included. By focusing on systematic reviews and meta-analyses alongside other high quality types of evidence, it was possible to access a large body of evidence, focusing on the UK and drawing on international material to cover each outcome area.

## SUMMARY OF THE EVIDENCE

The evidence bases for the different outcomes varied in quality and size, with physical and mental wellbeing explored well, individual development explored fairly well, and evidence on social and community and economic development (not including evidence on major events) more patchy. There was much interlinkage in terms of the outcome areas.

**Physical wellbeing. The contribution of sport and physical activity is widely accepted and robustly evidenced, and causality established using validated measurement tools.**

- There is good evidence for the ***prevention of ill health, therapeutic and management effects***, improvements in ***strength, balance, gait and motor skills***, and maintaining *a healthy weight*.
- Other outcomes include improved ***sleep***, increased ***energy***, healthy ***early years development***, reduced ***risky behaviours*** such as smoking, reduced ***mortality,*** effective ***pain management*** and improved ***quality of life in ageing***.

1 Sporting Future – A New Strategy for an Active Nation (December 2015)

**Characteristics of successful interventions:**

- More *intense and sustained activity* leads to greater benefits.
- Taking part in a *range of activity types* (resistance, aerobic, weight bearing) increases the benefits compared to a single type.
- Certain benefits may only be realised from physical activity as *part of a wider healthy lifestyle*.

**Mental wellbeing. There is a strong association between taking part in sport and physical activity and positive mental wellbeing outcomes, but the causal mechanisms are less well understood. There are challenges around the varied definitions used in the field, and the subjective nature of measures.**

- There is much evidence that sport and physical activity contributes to *enjoyment, happiness,* and *life satisfaction*. Social interaction is central to this.
- *Self-esteem and confidence* can increase through the opportunity to develop new skills and relationships.
- There is potential to *reduce anxiety and depression* symptoms.
- Other outcomes include improved *cognitive functioning,* benefits for people with *dementia*, and impacts around *emotion regulation*.

**Characteristics of successful interventions:**

- Incorporating *social interaction.*
- Increased *regularity and duration.*
- Interventions involving *sport or physical activity alongside other support,* such as counselling.

**Further research:** more *longitudinal studies* exploring long-term impacts and the sustainability of interventions are needed. Greater *specificity in definitions and concepts* would enable better understanding of the relationships being measured and the transfer of findings into practice.

**Individual development. There is a substantial evidence base that indicates the potential for positive outcomes from taking part or volunteering, particularly for young people, but the wider set of circumstances around an individual will determine effectiveness in relation to these outcomes.**

- Evidence was identified for improved *educational attainment*, either directly (improved grades and behaviour) or indirectly (enhanced skills like concentration and teamwork).
- There are positive impacts on *employability* (employment opportunities, earnings, job performance and satisfaction), including (limited) evidence on *NEETs*.
- Sport can promote *self-efficacy* (motivation and commitment), for groups including elderly people and disaffected young people.
- Other outcomes are an increased *willingness to volunteer* and development of *soft skills* (such as integrity, responsibility and leadership).

**Characteristics of successful interventions:**

- *Longer duration* of engagement.
- Integration of sport and physical activity with *strategies such as self-reflection*.

**Further research** could shed light on the links between sport and *anti-social behaviour*. In some circumstances it can promote anti-social behaviour through competition and increased alcohol consumption, but in other situations it may also be related to better self-control – associated with reduced alcohol consumption and drug use.

**Social and community development.** **Outcomes can be defined in relation to a range of concepts that are often challenging to evidence (such as social capital, trust and networks). Many of which are positively associated with participation or volunteering, but the effectiveness of any intervention is dependent on a broader set of conditions.**

- Sport acts as a conduit for *people of different backgrounds* to interact, can bridge divides between groups such as men and women and people with different employment backgrounds, and play a key role in the integration of *migrants.*
- A small body of literature on *bonding capital* suggests that sport helps to build relationships within communities.
- For *volunteers,* motivations and outcomes overlap at the personal and the community level (for example, bonding with others increases a sense of community and citizenship).

**Characteristics of successful interventions:**

- Offering *appropriate and appealing types of opportunities*, especially for children and young people.
- Considering the wider context of people's lives.

**Further research:** current research is characterised by uncertainty about causality between sport and social and community development; *more effective measures* for these outcomes are sorely needed.

**Economic development. There is a variety of sources in terms of breadth and depth, despite making up a small proportion of the sources reviewed. The sources use a wide variety of techniques to calculate economic value, and it is not possible to accurately assess the strength of the evidence base without a critical appraisal of the full range of these methods (outside the scope of this review).**

- There was some evidence on the *direct impact* of the sport sector on the economy, largely in terms of *gross value added* and *job creation.*
- There was more evidence on the *indirect impacts* (*reduced healthcare costs* due to a healthier population, *reduced crime, improved employability*).

**Further research** could focus on critically evaluating the range of methods used to calculate the economic value of sport, with a view to *recommending a standardised approach*. We need a shared understanding of how to monetise social outcomes, e.g. health and crime. Current research appears to be dominated by major events, with little coverage of *economic impacts at local and community level* which will be of interest to local commissioners and providers.

# KEY MESSAGES

**How can I use this review?**
You can use this review to:

- Help you understand and demonstrate to others how sport and physical activity contribute to the Government strategy outcomes.
- Inform how you set up your project to maximise impact on the outcomes. General factors that increase effectiveness include inclusive approaches, appropriate environments and continuing engagement. However, much of the evidence is very specific, so if you're designing and delivering interventions you should refer to the relevant sections of the evidence on how to impact specific outcomes for specific target groups.

**What are the gaps in the evidence?**
This review has identified some key gaps in the evidence:

- The evidence base is strongest for the physical and mental wellbeing outcomes, then the individual development outcome. It is weaker for the social and community development and economic development outcomes.
- More longitudinal studies could help strengthen the evidence base by identifying the longer-term effects on mental wellbeing, individual development and social and community development.
- There is much more evidence on participation than volunteering or spectating. There may be value in comparing outcomes for sports volunteers against those in other sectors, to identify the specific impacts of the sporting aspect of their volunteering. Spectating has received little attention, yet offers the potential to reach many people.
- The main focus of this review was on examining the evidence of impact on the outcomes, rather than how interventions should be set up to maximise the achievement of outcomes ('what works'). Understanding the evidence of what works will be an important focus for future work.

**How can we strengthen the evidence?**
This review is a step in an ongoing process of understanding the evidence, identifying gaps and moving towards filling them.

We will help to strengthen the evidence base in the following ways:

- By regularly updating this work. We will work closely with academics and partners in the sector to identify priorities for future updates. These updates will explore new evidence and examine parts of the evidence base that were outside the scope of this initial review e.g. evidence on what works to achieve the outcomes, literature on the impact of major events.
- By creating and sharing an Evaluation Framework to help ourselves and our partners to implement more consistent and proportionate evaluation arrangements. As part of this work we will seek to establish shared definitions and measures for the outcomes e.g. 'social trust'.
- By evaluating our investments to generate new evidence on how sport and physical activity can contribute to the outcomes. We will focus particular effort on evaluating innovative and untested delivery models.
- By working collaboratively with academics and partners in the sector to develop the evidence base, in line with the commitment in our strategy Towards an Active Nation.

# INTRODUCTION

We are the government agency responsible for growing and developing grassroots sport. In June 2016 we commissioned OPM to undertake a review of the evidence base on the contribution that engagement in community sport and physical activity (participating, volunteering and spectating) can make to the five outcomes identified in Sporting Future, the Government's new strategy for sport[2]. The five outcomes are:


2 Sporting Future – A New Strategy for an Active Nation (December 2015)

Our intention in commissioning the review was to assess the evidence base with a view to stimulating further research, improving evaluation practices and developing a more robust evidence base for the future. The specific aims of the review were:

- To collate the evidence on how sport and physical activity can contribute to the five outcomes in a single resource that can be used across the sector.
- To identify the characteristics of successful interventions.
- To surface evidence on outcomes for different subgroups.
- To identify gaps in the current evidence base.

This report presents the findings from a rapid evidence review conducted for the different outcomes. Further research activity will be required to build on and consolidate the evidence and findings from this review.

## POLICY CONTEXT

Sport and physical activity are integral parts of England's social and cultural life, with everything from local school sports, dancing and recreational walking to international mega events drawing in millions to take part and spectate, often supported by people volunteering their time to enable this to happen. However, while sport and physical activity have long been associated with entertainment and leisure, they have also come into increasing focus in various other domains as a way to generate wider socio-economic benefits. Policy makers seeking ways to improve social outcomes in a number of fields, from tackling obesity to anti-social behaviour, have looked to sport and physical activity as a means of addressing these outcomes. The Chief Medical Officer's Physical Activity Guidelines were published by the Department of Health in 2011, setting out recommendations intended to reduce the risk of ill health associated with inactivity and sedentary behaviours[3].

3 Department of Health (2011) UK Physical Activity Guidelines

This increasing appreciation of the potential of sport and other physical activities, such as walking, utility cycling and dancing, to contribute to a wide range of positive outcomes has now also been reflected at the highest level, with the publication of Sporting Future in 2015 framing the Government's strategy for the role of sport, and sports funding, as one not just of achieving participation numbers, but more widely focusing on the social good that sport and physical activity can unlock.

Our strategy for 2016–2021, ***Towards an Active Nation,*** is aligned to this change in focus, with funding and investment decisions following 'lines of sight' directly linking to the Government strategy's five outcomes and their related KPIs[4]. This shift towards a more holistic approach, considering sport and physical activity wider social benefits, has also opened a focus on impact beyond only those who participate, to the many others who volunteer and spectate.

As a result of this policy shift, funding for sport and physical activity will be linked to the social impact that delivery organisations can make, and demonstrate, for the five outcomes. In return, this places new requirements for shaping programmes and measuring impact onto delivery organisations.

This shift in focus also requires an understanding of the evidence base around how engaging in sport and physical activity can contribute to the five outcomes, to allow policies, programmes and funding approaches to be designed and measured based on current evidence and best practice. Much evidence already exists on the outcomes of sport and physical activity, but there has not been a comprehensive review of the evidence base that aligns to the five outcomes in order to support this new approach. With evidence dispersed across different fields, it has so far only been possible to take a partial view of the available evidence; knowing what works best, and where the link to outcomes lies, are as yet under-explored.

This review seeks to address this partial view of available evidence by reviewing the evidence across all five outcomes. This will enable a comparative approach in order to inform future funding and delivery programmes, as well as guiding future research aimed at addressing gaps in the evidence base.

4 Sport England (2015) ***Towards an Active Nation. Strategy 2016–2021,*** pp. 10–11.

# READING THIS REPORT

## Structure

The rest of this report contains the following sections:

- Review method.
- Overview of the evidence.
- Findings relating to each of the five outcomes (including characteristics of interventions that are successful in producing outcomes).
- Conclusions.

To structure each outcome chapter, OPM referred to the Sporting Future strategy to identify themes relating to each outcome; where appropriate, these are used as subheadings. Where there is evidence relating to specific interventions or subgroups, this is presented. In each of the outcome chapters, the issues around measurement and attribution of outcome are discussed, any negative outcomes associated with sport are noted, and gaps in the evidence are identified.

Characteristics of successful interventions are included within each outcome chapter; in addition to this, a number of more generic factors were identified which the evidence did not link to specific outcomes. These are presented after the outcome chapters.

## Definitions

The review covers sport ***and*** physical activity, which includes team and individual sports, gym and fitness activities, recreational and utility cycling, walking and dancing, as does the Sporting Future strategy. The report specifies where a source refers either to a specific sport, to sport in general, or to physical activity in general.

## Referencing

Sources are listed next to subheadings and specific findings within the text, using their three-digit identifier, eg[015]. Where multiple sources are listed, this should not be taken to mean that the evidence for this topic or finding is necessarily greater, as all sources do not have equal evidence bases or cover the topic to the same extent. A list of sources in number order can be found in Appendix 1.

## Note on method

As explained in the method section below, this review used a rapid evidence review approach, which means it used a systematic method, but was conducted within limited time and with a fixed budget. It therefore does not claim to be comprehensive – rather it represents a pragmatic first step towards organising the evidence base. A vast body of evidence exists, which could not all be included in this review; however, the material included was selected using a transparent and replicable process. Decisions about which items to review were made jointly with OPM, with input from an advisory group. (A list of advisory group members can be found at the end of the Method section, which follows.) Items longlisted but not reviewed in full were logged.

# METHOD

The outcomes evidence review utilised a rapid evidence review method to provide a systematic yet feasible search strategy to assess available evidence sources, including grey literature and programme and project level data.

The function of the review was to provide a detailed overview of the existing evidence base aligned with the five outcomes identified within the Sporting Future strategy[5]: physical wellbeing, mental wellbeing, individual development, social and community development and economic development. In addition to this, the review utilised a systematic flexible review process with clear boundaries imposed to manage the evidence included as well as to work within the agreed timescales. An evidence framework was established to ensure transparency in the appraisal of longlisted sources, and to provide a template from which the evidence base can build and evolve in subsequent years.

The review was conducted within a limited time period (July–September 2016) and a fixed budget, and therefore it was agreed that a maximum of 150 items could feasibly be included within the review. Therefore, this review does not claim to be exhaustive of the available evidence.

## SCOPING

A scoping interview took place with policy leads at the Department for Culture, Media and Sport (DCMS), to gain their views on the focus of the review; to hear about specific evidence to include or areas to search for evidence; and to gain insight to ensure the usefulness of the report for those working in the field. This conversation and suggestions from other members of the advisory group fed into the search areas and generation of search terms and shortlisting criteria.

## SEARCH FOR EVIDENCE

### Database search

A formal literature search, using bibliographic search databases, was the primary method of identifying evidence items. The searches were conducted by Alan Gomersall – visiting senior research fellow in the Centre for Evidence-Based Policy and Practice (CEBPP) at King's College London – who is an expert in literature search and synthesis. The database searches took place between 5 July and 15 August 2016.

A targeted and purposeful literature search approach was administered, guided by a comprehensive list of search terms within each outcome criteria. The search strategy was co-produced by OPM, Sport England and members of the advisory group and agreed the use of specific key words, and variants of these words to ensure a comprehensive output. Search terms to avoid and exclude were also agreed to prevent irrelevant items being retrieved. Specific search strategies were dependent on the database being accessed – examples of search strategies/ terms are included in Appendix 2.

5 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486622/Sporting_Future_ACCESSIBLE.pdf

A total of 43 searches took place across the following databases, selected for their relevance to the outcome areas being reviewed:

| | |
|---|---|
| Applied Social Sciences Index and Abstracts (ASSIA) | Psychinfo |
| Econlit | Scopus |
| Education Resource Information Centre (ERIC) | Sport Discus |
| International Bibliography of the Social Sciences (IBSS) | Social Policy and Practice (SPP) |
| PAIS International | Web of Science |
| Planex | |

The full search log (showing the strategy used for each database search, the number of hits and the number of potentially relevant items identified during the first sift) is included in Appendix 3.

## Evidence from other stakeholders

We sought evidence submissions from a wide range of stakeholders through regular communications with and via the advisory group. The sources submitted by stakeholders can be found on the long list of evidence, which is available alongside this report in the form of a searchable Excel spreadsheet.

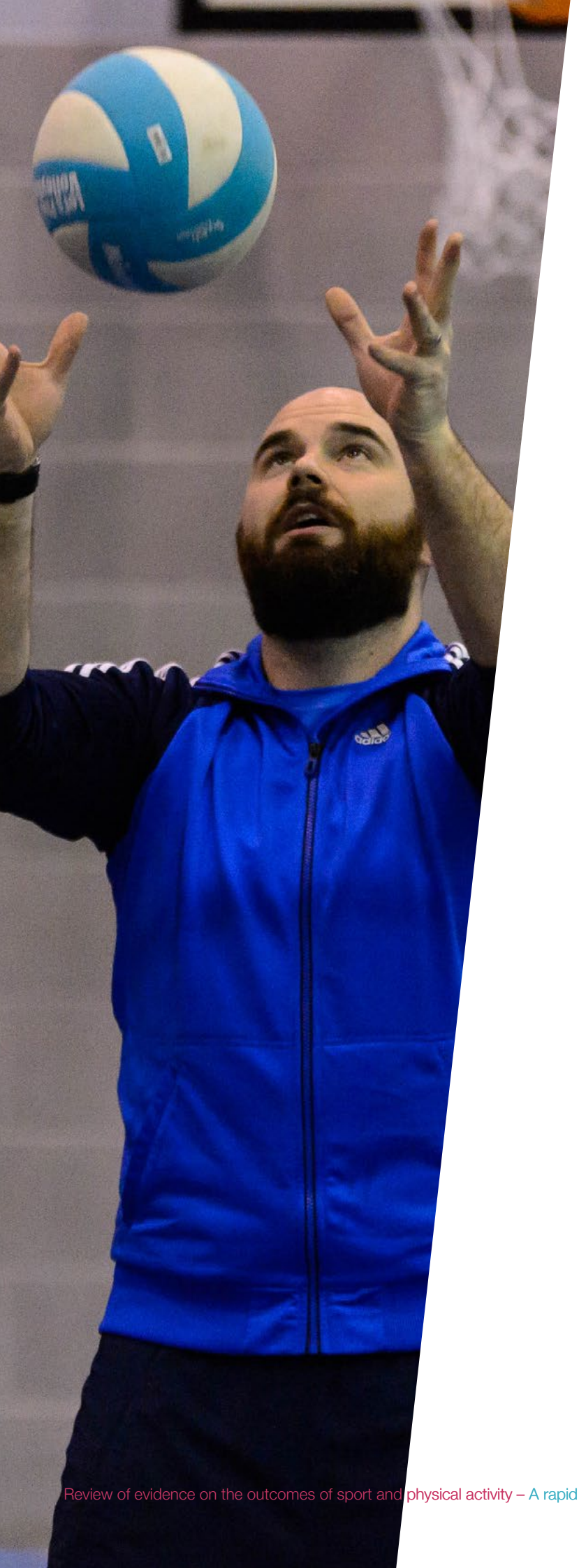
### First sift

Given the broad scope of the review and the need to narrow down the volume of evidence for potential inclusion, the following restrictions on date, location and focus were applied:

1 **Date**: only items published within the past five years (2011–2016) were included in the literature searches to ensure sources focused on current perspectives. Some sources, mostly reviews, draw on evidence published earlier than this. One source published in 2009, a systematic review of the literature on black and minority ethnic communities in sport and physical recreation, was included despite its publication date falling outside of the five-year date range, because this subject matter was not found to be adequately addressed within the later literature that was identified.

2 **Location**: there was a focus on UK literature, but international evidence was also considered where it was deemed relevant to the UK context (i.e. from broadly comparable contexts such as the US, Canada and western Europe).

3 **Focus**: evidence relating to mega events, such as the Olympics, was not included, except where it focused on community participation. We took this decision jointly with OPM, acknowledging that evidence relating to this type of sporting event may warrant attention in future updates of this review or other research commissioned.



## Second sift

A total of 3,196 items were reviewed based on abstracts. This comprised 3,036 items identified via database search and hand search of relevant websites, and the remaining 160 items submitted by stakeholders.

This led to 800 items being entered into an evidence matrix to form a long list of potentially relevant evidence.

Items were included on this long list if the abstract contained information of relevance to one or more of the five outcomes domains. If items discussed characteristics of successful interventions, but did not specifically link these characteristics with outcomes, they were not included. For example, many items appeared to discuss the characteristics of interventions which encouraged or sustained participation in sports (or volunteering). While participation (directly or via volunteering) is of course a pre-requisite for realising outcomes in terms of physical wellbeing and so on, participation as an end in itself was not one of the five outcomes on which the review focused.

In the matrix, sources were categorised by the outcome areas demonstrated in the abstract as well as information including the methodology, sample size and quality of the source.

## Third sift

In order to reduce the longlist to a number of items that could be reviewed within the available timescale, the items contained in the longlist matrix were reviewed, using the abstracts, with the aim of including evidence against each of the 5 outcomes areas and subthemes identified from the Sporting Future strategy. Many items contained evidence around more than one outcome area.

Items were sifted using a number of selection criteria, to identify a subset of items for full review. The following table gives a summary of the criteria and how they were applied.

| Criteria | How applied |
|---|---|
| Relevance (whether evidence relates to one or more outcome areas) | Items covering more than one outcome area, or more than one subdomain within an outcome area, were prioritised. |
| Study design/method (type of study, e.g. systematic review, case study) | Studies were prioritised in the following order:<br>systematic reviews and meta-analyses (likely to contain a multitude of applicable evidence, with the authors commonly providing an overview of the quality of studies included)<br>cohort/comparative studies, randomised controlled trials, case control studies<br>qualitative case studies, narrative reviews<br>Excluded: opinion, any other items not based on evidence |
| Source (where evidence is published, e.g. journal or government website) | Items in peer-reviewed journals were prioritised in terms of source, followed by government reports. |
| Reach (subgroups covered e.g. BME, sport or sports covered, sample size) | We sought to include items covering subgroups of interest, including BME groups and disabled people. |
| Geography (UK or non-UK) | Non-UK items were included where there was a lack of UK evidence. |
| Quality (whether there is discussion of the strengths and limitations of the evidence presented) | If items were not of high quality but focused on an area of interest otherwise not covered in the evidence, they may be included with clear caveats.<br>Quality was primarily appraised by evidence type (as set out above), rather than through assessment of the quality of each individual source. Where OPM have commented on the quality of individual sources, this is based on the author's comments. |

More details on the criteria can be found in Appendix 4, including a detailed table showing the classification of studies by type/design.

OPM shared shortlisted items with us for approval prior to obtaining the full text.

## Final selection

The shortlisting process identified a total of 134 items considered to be of appropriate relevance and quality for inclusion in the review.

Full text articles were available for 131 selected items either from online sources or from the British Library.

Three items were unable to be obtained via these methods and were not able to be included in the evidence review.

Of the 131 items reviewed in full, 13 items were found, on reading, not to contain relevant information and were excluded from the review.

A total of 117 items were included in the first draft of the evidence review.

We commissioned a group of academic experts to review the first draft of the review (further details on their role are provided at the end of the Method section). As well as providing comments, they suggested a small number of additional sources to be considered for inclusion. Twelve of these were subsequently included, bringing the total number of sources on which the review is based to 129.

# ANALYSIS AND REPORTING

### Data extraction

Full-text items were reviewed and evidence was extracted and recorded against the framework below. It contains the five outcomes, and within each of these, a number of subthemes based on the descriptions of the outcomes in Sporting Future, to guide the extraction of data.

An 'other' category for each outcome was used to ensure that all relevant material was captured.

Not all of the subthemes used for the data extraction process translated directly into headings in the report; the headings in the report are determined by the content of the evidence.

| Outcome | Outcome subthemes |
|---|---|
| Physical wellbeing | Reduction of the risk of developing medical conditions (type 2 diabetes, cancer, dementia, stroke, heart disease, depression) |
| | Increased percentage of physically active people (CMO guidelines 150 minutes each week) [covers physical and mental health benefits] |
| | Encouraging people to take part in ways that deliver the most for their physical wellbeing |
| | Increase in energy levels and the knock-on benefits |
| | Improvement in strength, balance and maintaining a healthy weight loss [also linked to CMO guidelines] |
| Mental wellbeing | Sport and physical activity as a source of enjoyment or happiness |
| | Reducing anxiety or stress |
| | Increased confidence and self-esteem as a result of gaining new skills |
| | Combatting depression through mild exercise |
| | Understanding "the precise links between mental wellbeing and sporting behaviours" |
| Individual development | Improvements in educational behaviour and attainment |
| | Positive impact on employment opportunities |
| | Tackling the problems of those who are NEET (not in education, employment or training) |
| | Increased levels of perceived self-efficacy |
| | Other |
| Social and community development | Build stronger communities by bringing people from different backgrounds together |
| | Improve community links, levels of cohesion and social capital |
| | Improving residents' sense of belonging in an area |
| | Feeling more connected to your neighbourhood or community |
| | Increased levels of social trust |
| Economic development | Contributions to the local and national economy (creating jobs, promoting growth, driving exports) |
| | Economic value of sport to the UK economy |
| | Lower socio-economic groups to tie in with the target groups specified in DCMS strategy |

Data was also recorded against the following themes:

1. Characteristics of successful interventions, i.e. what is it about particular interventions that make them effective in achieving outcomes?
2. Measurement and attribution, i.e. any observations or discussion by authors around the tools and indicators that are used to measure outcomes, and around the extent to which outcomes can be attributed to interventions.

Information was mapped against the three modes of involvement in sport and physical activity: participating, volunteering and spectating.

Information contained within the full-text articles was entered into the evidence matrix. Commonly, the evidence contained within the article was summarised in the evidence matrix (rather than entered verbatim). Where direct quotes were entered, a page citation was included.

### Reporting

On completion of the full-text reviewing, the evidence contained within the matrix was reviewed and the reporting themes were amended slightly from the initial subdomains extracted from the strategy paper to ensure they best described the evidence contained within them. The evidence collated within the 'other' category for each of the five outcomes was split into themes for reporting.

The completed evidence matrix containing summary details of long listed items and full details of included items is available alongside this report.

## OVERSIGHT AND REVIEW

### Advisory group

We convened an advisory group of representatives of nine other organisations supporting and delivering sport and physical activity in England together with internal colleagues. The advisory group played a role in:

- Shaping the brief for the review.
- Selecting a supplier to conduct the review.
- Feeding back on OPM's proposed approach and deliverables.
- Contributing throughout the project, including identifying sources of evidence.
- Commenting on the draft evidence review report and options for infographic summaries of the research findings.

Public Health England in particular provided detailed comments on the report.

Members of the advisory group are listed in the following table:

## Advisory group members

| Organisation | Name(s) and role(s) |
|---|---|
| DCMS | Charlotte Lawrence (head of sports participation), Mary Gregory (head of statistics), Joe Garrood (policy advisor) |
| Comic Relief | Sue Wickes (strategic lead – Sport for Change) |
| Macmillan Cancer Support | Justin Webb (physical activity engagement manager) |
| Public Health England | Michael Brannan (deputy national lead for adult health and wellbeing) |
| Sported | Emma Heel (head of evidence and learning) |
| Streetgames | Ceris Anderson (knowledge and insight manager) |
| The Social Innovation Partnership | Dimitrios Tourountsis (senior manager) |
| UK Active | Steven Mann (research director) |
| UK Sport | Rebecca Edser (major events consultant) / Jerry Bingham (research manager) |
| Sport England | Darcy Hare (head of research and evaluation), Barbara Tomaszczyk (insight manager), Claire Stott (head of sport for development), Rachel Graham (head of sport for development), James Radford (strategic lead – business engagement), Andrew Spiers (strategic lead – research, evaluation and analysis), Sarah Ruane (strategic lead – health), Ruth Alleyne (strategic lead – local government), Simon Macqueen (strategic lead – strategy) |

## Academic expert review

We commissioned a small group of academic experts in the sports sector to review the first draft of this report. They provided overview comments as well as annotating the draft review with specific comments, suggested a small number of additional sources to be considered for inclusion (as mentioned above) and advised that the review incorporate more clarity around the type and quality of the evidence reviewed.


BRASIL

# FINDINGS

## OVERVIEW OF THE EVIDENCE BASE

This section provides a brief summary of the evidence identified in the searches, and the sources reviewed for this report, in terms of:

- The type of evidence.
- The relative coverage of the outcome areas.
- The relative coverage of the three modes of engagement (participating, volunteering and spectating).

### Longlist from initial search activity

In the initial stages of the review, OPM identified a long list of 800 potentially relevant sources.

### Primary/secondary research split (longlist)

**Over half** of sources from the longlist were based on **secondary research**, such as literature or narrative reviews (non-systematic, i.e. not reporting an explicit or transparent method of selecting items for inclusion), systematic reviews, meta-analyses and expert opinion[6].

**Over a third** of the longlisted sources were based on **primary research**, such as cohort studies, randomised control trials, and case studies.

The remaining sources drew on both primary and secondary sources.

### Outcomes areas covered (longlist)

A number of sources covered several outcome areas.

| More coverage | Less coverage |
|---|---|
| Physical wellbeing (354 sources) | Community development (122 sources) |
| Mental wellbeing (299 sources) | Economic development (81 sources) |
| Individual development (230 sources) | |

### Modes of engagement covered (longlist)

Not all sources were clear in their abstracts about which mode of engaging was being covered, particularly for some of the macroeconomic studies on economic development.

Almost all sources that did specify the mode of engagement involved **participating**.

Only 31 considered outcomes from **volunteering**.

24 items referred to **spectating**.

It is important to note that the decision to exclude items on major events is likely to have reduced the coverage of evidence on spectating and on volunteering.

### Sources included in the review

134 sources from the longlist were chosen for inclusion in the review.

### Primary/secondary split (included studies)

Just over three quarters of the sources reviewed were based on secondary research, mostly systematic reviews and narrative reviews, and some meta-analyses

Around a sixth included primary research.

6 Other examples of secondary research include: guidelines; framework; expert opinion; cross-sectional study; economic evaluation.

### Outcome areas covered (included studies)

The spread of different outcome areas covered by the articles reviewed was somewhat more balanced than for the longlist, because articles were purposely selected to ensure that all outcome areas were addressed in the review.

Just under half discussed physical wellbeing outcomes (60), with slightly more discussing mental wellbeing outcomes (68). Individual development was also investigated by sources reviewed (60).

Fewer sources offered evidence on impacts around social and community development (30) and economic development (38).

Many of these sources covered multiple outcome areas, with some common areas of overlap:

- Sources on physical wellbeing very often also discussed mental wellbeing, and vice versa.
- Sources on individual development often also covered mental wellbeing, and, somewhat less often, also discussed physical wellbeing or community development.
- Sources on social and community development often also mentioned individual development, and also physical or mental wellbeing.

Sources covering economic development often looked at the other outcome areas, particularly for individual development, and physical wellbeing (as a large number of these sources involved assigning monetary values to outcomes in health, employability, reducing criminal or anti-social behaviour, and educational attainment).

### Mode of engagement (included studies)

Participation was still the most commonly discussed mode of engagement in the sources reviewed, featuring in 126.

Volunteering was covered in 13 sources and spectating in 12. (Note that these numbers may be lower because of the exclusion of literature on major events, as explained above.)

### Geographical coverage (included studies)

Many of the included studies were reviews or meta-analyses which tended to draw on evidence from many countries. 22 sources stated that they drew on international evidence, alongside 26 which did not state their geographical coverage but which were likely to have included international evidence.

52 sources included evidence from the UK, of which 24 were UK only, 14 England only, 1 Scotland and 1 Northern Ireland.

Small numbers of sources covered only Europe/specific European countries, the US, Canada or Australia.

### Subgroups (included studies)

Around two thirds of sources (91) discussed interventions or outcomes for particular subgroups. These tended to be based on:

- Age (young people or elderly people).
- Different health conditions including mental health.
- Gender.
- Educational/working status.

Or, combinations of these.

### Types of sport and physical activity (included studies)

Just under a third of sources (42) looked into the outcomes achieved by specific types of sport and physical activity.

These ranged widely from some of the most commonly played or watched sports (football, athletics) to other types of physical activity such as dance, walking, and yoga.

A very small number of sources took a comparative approach between different types of sport or physical activity, or different interventions including these.

# 1. PHYSICAL WELLBEING OUTCOMES

A total of 65 sources reviewed have evidence about physical wellbeing outcomes.

**PRIMARY SOURCES**

4 case control studies

1 randomised control trial

1 cohort study

**SECONDARY SOURCES**

26 systematic reviews or meta-analyses

17 narrative reviews

3 guidelines

2 rapid evidence assessments

2 policy briefs

1 cohort study

1 cross-sectional study

1 economic impact assessment

1 evidence briefing

1 expert opinion

**MIXED SOURCES**

3 narrative reviews and case studies

1 narrative review and a survey

The majority of sources (54 out of 60) include outcomes evidence which falls under other domains, most frequently mental wellbeing (37 sources).

Physical wellbeing is a concept taken directly from the Sporting Future strategy. As a concept it incorporates physical health outcomes, as well as outcomes such as improved sleep and energy levels. Throughout this chapter the authors use the term of physical wellbeing to make general points, but use the specific concepts used in the evidence source when reporting on a specific finding.

Sporting Future notes that the physical benefits of sport and physical activity are well documented, and that this provides the main rationale for current investment in increasing sport participation. The benefits of physical activity are also evidenced and promoted in UK physical activity guidelines published by the Department of Health (2011).

In the wider literature, a robust systematic review reports that compared with other domains there is generally a stronger and greater amount of evidence to support the physical health benefits of sport and exercise[291]. Furthermore, the evidence is said to be of a good quality because the

measurement of physical health benefits from being more "scientifically quantifiable"[271] and because there has been a significant amount of research undertaken by the scientific medical community in the field of physical health[291].

Important distinctions emerged in the evidence base in terms of the types of outcomes that can be achieved under the domain of physical wellbeing:

- Preventative benefits (covered in section Prevention of medical conditions).
- Therapeutic or management benefits (covered in sections Management of medical conditions; Improvements in strength, balance, gait and motor skills; Maintaining a healthy weight).
- Benefits in early years – children's development and behaviour (covered in section Other physical wellbeing outcomes).

## MEASUREMENT

This review considered evidence from a large number of secondary studies, many of which have used a **combination of objective and self-reported measures** and both validated and non-validated measures.

**Objective measurement approaches** have frequently included the use of accelerometers and pedometers for tracking physical activity, as well as a range of other tests and devices, such as blood pressure measurements, lung function tests, hand-held dynamometers (to measure grip strength), physical endurance tests (such as the 6-minute walk test), and mobility tests (the Timed Up and Go Test)[115, 349].

**Self-reported measurement approaches** have included the use of activity logs: pre- and post-questionnaires and interviews[237, 341, 345, 816].

The measurement of physical wellbeing is a well-established research area, and in line with this, sources reported using a wide range of validated measures for assessing particular outcomes. For example, one source[064] cited the use of a pain rating scale, the Barthel Index, to measure self-care functioning and a mobility scale for elderly people.

Several sources noted that self-reported measurement approaches carry specific **risks and limitations**. These include participants recording data inaccurately and the fact that some impacts on health may not be amenable to self-reporting[291]. It is also common for participants to overstate their levels of activity and the positive outcomes achieved[186, 192, 356] which is a phenomenon associated with social desirability bias[7].

Reflecting on the use of self-reported measures in primary research studies, it has been noted that these are widely accepted because of the **cost and logistical benefits** compared with using objective instruments[237]. The CMO's guidance is based on self-reported targets.

Alongside the challenges and limitations associated with self-reported measures, a number of sources describe a **range of research design flaws** which challenge the validity of the findings. These included: the use of non-validated measures[341]; lack of a control group[345 666]; selection bias[615] (where participants with particular characteristics may be more or less likely to take part); high rates of attrition[345]; low sample sizes[341]; and heterogeneous participants[615 666]. Additionally, when it comes to secondary research even where a rigorous search strategy is employed, one source notes that it is always possible that certain literature could have been missed[340].

7 This is a social science term which describes how survey respondents may answer questions in a manner that will be viewed favourably by others. It can take the form of over-reporting "good behaviour" or under-reporting "bad" or undesirable behaviour.

Several sources reported a **lack of consistency in terms of the measures and approaches** used to measure outcomes which could undermine the comparability of results[340, 341]. For example, a study exploring the impact of dance programs in reducing falls in healthy older people cites methodological issues that limit the claims that can be made about the outcomes achieved. Some interventions involved exercise and dance, so the degree of impact linked to dance is unclear[365].

Other factors which could undermine the comparability of results obtained from different studies included the use of **varied categories and definitions** (e.g. how categories such as "low", "moderate" and "high" intensity activities were defined)[356, 816], reviews which included interventions where there were components not related to physical activity (where causality becomes more difficult),[209] and varying timeframes for assessing impact[363]. In attempting to establish causality, one source noted that this can be difficult because of the risk that positive relationships may exist between participants and certain activities because people with better health participate more regularly[291].

Another measurement challenge that was cited was the fact that reviews and studies frequently **do not measure long-term efficacy**[047, 615]. Therefore, it is often unclear whether reported physical wellbeing outcomes will be sustained and what conditions are required to bring this about.

One systematic review makes a set of recommendations around measurement calling for more robust and comprehensive data collection of physical activity levels and types of activity; disaggregated by key demographic variables; and further development of tools, indicators and measurement frameworks in order to support more consistent and comprehensive data collection[538].

## PREVENTION OF MEDICAL CONDITIONS
**186, 192, 222, 238, 271, 276, 291, 302, 538, 632, 813**

There is a robust and well-established evidence base demonstrating the effectiveness of regular physical activity in the prevention of premature death and a range of chronic diseases such as cardiovascular disease, diabetes, cancer (including breast and colon[276]), hypertension, obesity and osteoporosis. Here, several secondary research studies and systematic reviews[186, 238, 276, 291] cite a major Canadian study by Warburton and Bredin (2006), which explores the evidence from over 150 pieces of observational and randomised research on the health benefits of physical activity and which provides *'irrefutable' evidence of the preventative health benefits of undertaking regular physical activity* (Cox, 2012, p15)[276].

Some studies describe the preventative benefits of physical activity in terms of a **reduction in the risk of ill health**. For example, the *Start Active, Stay Active* physical activity guidelines for health for the UK describe strong evidence that being at least moderately active reduces the risk of developing type 2 diabetes by 30–40% compared with being sedentary[192]. Another source, drawing on a meta-analysis of high quality studies, reports that physical activity can reduce the likelihood of developing endometrial cancer by 30%[533]. Another source identifies findings from across several high quality systematic reviews and epidemiological studies[813]:

- A 25–30% reduction in stroke among active individuals.
- A risk reduction for breast cancer of approximately 20–40% for those who do vigorous physical activity for 30–60 minutes on five days each week.
- That the most active people have 30% lower risk of colon cancer than the least fit.
- That physically inactive people can have as much as twice the risk of coronary heart disease.

A review focusing on sports participation by **women and girls** reports that both breast and womb cancers have been linked to physical inactivity[533]. The source cites evidence from a meta-analysis of high quality cohort studies which shows that *"for every two hours of physical activity a woman does [each week], her risk of breast cancer falls by 5%. Physical activity has also been shown to reduce the risk of uterine cancers, with active women being 30% less likely to develop endometrial cancer than inactive women."* (Johnson et al, 2015, p.20).

In terms of the preventative benefits of physical activity for different subgroups, a review focusing on **5–11 year olds** found a strong evidence base that children with good cardiometabolic health have a lower risk of developing a range of risk factors for cardiovascular disease, including type 2 diabetes, hypertension, and obesity[820]. There is also strong evidence that higher doses of physical activity are associated with higher levels of cardiovascular and metabolic health[820].

## MANAGEMENT OF MEDICAL CONDITIONS[192, 276, 349, 533, 562, 817]

There is robust evidence that participating in physical activity and sport can have therapeutic or management benefits for a range of medical conditions. For example, literature reviews of high quality studies report strong evidence that participation in physical activity and exercise programme by people with **rheumatoid arthritis** and those with **multiple sclerosis** can be an important contributor to symptom management[680].

There is also robust evidence that people living with **type 2 diabetes** can reduce their need for medication and the risk of complications by being more active[192, 291]. When it comes to this relationship, evidence from a large scale RCT in the US indicates that a combination of aerobic and resistance exercises are most beneficial for the management of type 2 diabetes[276].

Physical activity can slow the progression of conditions such as **osteoporosis**[291] (systematic review of high quality studies) and can have a positive impact on people diagnosed with **cancer**[276, 291, 817]. Contrary to the traditional view which may overemphasise the benefits of rest, physical activity can play an important role in treating the symptoms of cancer, such as anxiety, fatigue and impaired mobility, and can increase the chances of survival[276, 817]. A review of high quality primary and secondary evidence shows that exercise can also be beneficial both during treatments (chemotherapy, radiotherapy and hormone therapy) and following cancer treatments, where it can help patients to recover physical function, manage fatigue and control body weight[817].

In terms of the outcomes associated with different **types of cancer**, the same review found evidence from a number of high quality studies which showed that exercise can lead to reduced mortality risk for individuals living with and beyond breast cancer, colorectal cancer and prostate cancer [817].

## IMPROVEMENTS IN AND MAINTENANCE OF STRENGTH, BALANCE, GAIT AND MOTOR SKILLS[033, 186, 192, 349, 365, 534, 535, 538, 615, 820, 827]

There is robust and high quality evidence that exercise and physical activity can lead to improvements in strength, balance, gait and motor skills. Many sources focus on the benefits for specific **age groups** or **subgroups**, such as those recovering from stroke or for people at risk of falls.

### Early years

When it comes to physical activity between the **ages of 0–5**, one review reports that there is strong evidence that physical activity has a positive impact on fundamental motor skills – and drawing on a literature review – it has been argued that in turn this can influence children's physical, social

and cognitive development. The same review notes that due to differences in the programmes that have been reviewed, the effect of different types of physical activity on motor skill development is still uncertain[534]. Another systematic review, drawing on evidence from a primary research study conducted in the US, states that physical activity in childhood and adolescence is critical to the development of *"foundational movement skills"* which can act as a building block for all later physical activity[538].

### School age

A systematic review of school-based physical activity interventions finds that improvements in motor performance (standing, walking, running) was one of the most commonly achieved outcomes[033]. A review of the impact of physical activity on 5–11 year olds finds strong evidence that resistance training can lead to improvements in muscle strength among children, although it notes that the optimal type, intensity, volume and duration of strength of training exercises is yet to be determined[820]. Resistance training has not been shown to have adverse effects on children's growth or maturation[820].

### Adulthood

When it comes to adults, an evidence-based policy paper from Public Health England states that simple resistance activities (e.g. press-ups or light lifting) performed twice a week can improve strength and stability and prevent the development of musculoskeletal disease[192]. The paper underlines the value of these activities for adults because from the age of 30, muscle and bone mass peaks and gradually begins to decline. Another source cites evidence from a systematic review of high quality evidence highlights the positive effects of Pilates exercise training on muscle endurance, flexibility and balance in young and middle-aged people, as well as the positive impact that it has on core strength[349].

### Older people

When it comes to older adults, systematic reviews have found evidence that regular exercise reduces the risk of musculoskeletal injury through improved agility and balance, and by reducing frailty and falls[186, 291, 538]. Other reviews echo these findings and report that exercise and physical activity interventions undertaken by older people can lead to increased muscle strength, stamina and improvements in posture and gait[064, 276, 365].

Several studies report on the effectiveness of specific types of interventions for older people. For example, a number of secondary reviews find evidence that Pilates[349], dance[186, 365] and yoga [206] can bring about improvements in strength, balance and flexibility.

### Specific activities

In relation to specific sports, a high quality systematic review cites evidence that both football and running have the potential to deliver positive impact on postural balance, and that football can improve muscular performance[827].

## MAINTAINING A HEALTHY WEIGHT

**206, 275, 276, 345, 534, 536, 538, 680, 792, 817, 820, 827**

The Department of Health has proposed that physical activity alone has a very limited impact on weight loss[276]. However, there is strong evidence that **moderate levels of activity in combination with moderate changes in diet** are the most effective approach to tackling obesity[222, 276]. There is also evidence that physical activity as a means of reducing obesity is only effective as **part a broader set of lifestyle changes**, including having a healthy diet[792] and that changes to diet and lifestyle can make a greater contribution to weight loss compared with only participating in sport[275].

### Early years

In terms of life stage, when it comes to **0–5 year olds**, a review[534] reports that there is strong evidence from a systematic review of high quality studies to suggest that physical activity is inversely associated with weight. This suggests that physical activity can help to maintain a healthy weight. Another review drawing on evidence from four primary research studies, reports that there is some evidence that for children who are overweight/obese, physical activity is associated with reductions in overall levels of obesity.

### Throughout the life course

When it comes to maintaining a healthy weight throughout one's life, there is evidence from a large scale longitudinal US study which shows that sustaining a high level of physical activity **as a young adult** (18–30 years) can lessen weight gain as middle age approaches, and that this is particularly the case for **women**[276].

### Specific subgroups

For particular subgroups, there is good quality evidence from several literature reviews that regular exercise and physical activity can support weight management for people with **rheumatoid arthritis**[680], **post-natal women**[345], and people living with **cancer** both during and after treatment, where physical activity has been shown to have a positive effect on body composition, including a reduction in body fat[817].

### Specific activities

When it comes to types of activities, a high quality systematic review reports that there is 'moderately strong' evidence that regularly participating in football can reduce obesity[827]. Other sources report mixed results. For example, a study of a *12-week yoga programme aimed at community-dwelling older adults achieved improvements in BMI but not in terms of percentage body fat, while another, 24–week yoga intervention, aimed at frail transitional older adults achieved the reverse*[206]. Another source reports that the results from a high quality studying trialling an 8-week 3-times-a-week Zumba programme found that while participation can lead to positive changes in aerobic fitness, there is inconclusive evidence that it can lead to a significant decrease in body fat levels[666].

## OTHER PHYSICAL WELLBEING OUTCOMES

A wide range of other physical wellbeing outcomes were described in the evidence. These are outlined below.

### Improved quality of sleep[266, 533, 538, 820]

Poor quality sleep is linked to fatigue and tiredness, which in turn impact on physical wellbeing[8]. Several sources cite evidence that physical activity has been associated with improved sleep patterns[266,533,538]. A review of 5–11 year olds reports that moderate to vigorous physical activity may be associated with better quality sleep in some children[820]. However, other studies cited in the same source indicate that higher levels of physical activity may be associated with less sleep, lower sleep efficiency and increased sleep fragmentation. The review concluded that the evidence base about this relationship is equivocal.

### Increased energy levels[340, 680, 817]

An evidence-based policy paper cites evidence that physical activity can increase mental alertness and energy levels (although sources are not provided)[192]. Another source cites evidence from a qualitative study of an exercise intervention that physical activity and exercise can help to increase energy levels for people living with rheumatoid arthritis[680].

8 http://www.nhs.uk/Livewell/tiredness-and-fatigue/Pages/lack-of-sleep-health-risks.aspx

### Healthy development in early years
275, 536, 533, 820

There is evidence of an association between physical activity and healthy development outcomes in early years and childhood with the Chief Medical Officer's recommending at least three hours of activity across every day[9]. Being physically active in early years is associated with the development of healthy bones and muscles, healthy brain development and learning, and a strong heart[536, 820]. When it comes to the development of healthy bones in childhood, it has been noted that the exact dose of physical activity is yet to determined[820]. In addition, one source notes that positive outcomes are achieved even before birth, where there is evidence that exercise by mothers during pregnancy was found to stimulate babies' brain development[533].

### Reduced incidence of risky behaviours such as smoking and substance misuse[275, 538]

There is evidence that increased physical activity can lead to reduced incidence of risky behaviours such as smoking, alcohol and drug misuse[538]. However, in achieving these outcomes, the evidence notes the importance of participating in non-curricular sports delivery and specific physical activities in achieving these outcomes (the activities or type of activity are not specified in the study)[275]. Similarly, another study reports that physical activity is associated with reductions in smoking, teenage pregnancy, risky sexual behaviour, drug use, addiction and suicide[538].

### Quality of life for older people[064, 186, 291, 349]

There is evidence that different forms of sport and physical activity can improve people's quality of life, which is a broad, **multidimensional concept** that tends to include subjective evaluations of an individuals' standard of health, comfort, and happiness.

Sources that highlight this benefit focus on specific groups and activities, as follows:

- **Dance** programmes can improve **older people**'s quality of life (evidence from two qualitative international studies)[186].
- **Dance** can improve quality of life of people living with **Parkinson's disease** and for those with **dementia** (international studies which present limited evidence)[186].
- An **exercise training programme** (3 times a week for 12 weeks) aimed at **frail, older participants** resulted in improved quality of life, compared with a control group[115].

Quality of life is also discussed in the next chapter, on mental wellbeing, because it appears in the evidence in relation to both outcome areas.

## NEGATIVE OUTCOMES

When considering the reported negative outcomes associated with physical activity, it is important to note that the relative risks of being active are much lower compared with not being active. For the majority of people, the disbenefits of physical activity only occur with large amounts of physical activity that few people will reach.

Several studies identify the negative outcomes or risks associated with participating in different types of sport, exercise and physical activity.

### Risk of injury

The risk of injuries and accidents are identified several times[291, 538, 562]. For example, there is evidence that musculoskeletal injuries from participating in sports during childhood and adolescence can "*compromise function*" later in life, although there is limited long-term evidence[291]. The same study also cites evidence that *"vigorous participation*

9 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/541228/Children_0–5_infographic.pdf

*in sports and fitness activities during childhood and adolescence increases the likelihood of developing subsequent osteoarthritis";* however it also highlights other *"incontrovertible evidence"* of the effectiveness of physical activity and exercise in improving low bone mineral density and osteoporosis (Taylor et al, 2015, p26).

### Risk associated with specific activities or settings

Another study notes that specific settings may carry risks – with road runners and cyclists at risk from traffic accidents[276].

A narrative review of golf identifies the risk of musculoskeletal injuries from the golf swing, accidental injuries from golf equipment and the risk of skin cancer through prolonged exposure to the sun. However, the authors point out that *"this should not necessarily be taken to indicate that the negative health outcomes outweigh the positive, but more likely that there has simply been a greater level of academic interest in this area"* (Shibli et al., 2016, p5).

On the theme of **mitigating the risk** of accidents and injuries, a systematic review found some evidence that physical activity promotion programmes in parks and open spaces can have a positive impact[358].

### Risks for people with specific conditions

A systematic review of interventions aimed at patients with **chronic fatigue** found that vigorous exercise can be detrimental as it could exacerbate symptoms. Instead the authors recommend *"graded physical activity, at a level appropriate to the individual"* to help patients with chronic fatigue to manage their symptoms (Marques, 2015, p124).

Participants who are at greater risk of **undiagnosed cardiovascular conditions** are at risk of experiencing cardiac problems while exercising[276]. There is also evidence that high levels of training can lower the efficacy of the immune system[276].

### Alcohol and drugs

Two studies cite evidence that participating in sport can be associated with increased alcohol consumption and both recreational and performance enhancing drug use[291 276]. Here, one source highlights evidence that in the US adolescents and high school students who participate in athletic sports are more likely to consume tobacco, alcohol and to use performance enhancing steroids[291].

### Diet (sport fans)

One review comparing sports fans with non-sports fans[360] reports that the former have on average a higher BMI and engage in riskier health-related behaviours, particularly when it comes to dietary habits: *"Sports fans were found to eat breakfast less often than non-sports fans, consume foods higher in fat more often, consume fast food on a more regular basis, consume vegetables less often, consume refined grains as opposed to whole grains more often, and consume more alcoholic beverages on the days they chose to drink than do non-sports fans"* (Sweeney et al., 2012, p.6). The study notes that it is not clear what is driving these differences.

## CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS

The following are characteristics of individual level interventions (as opposed to population level, for example policy approaches or factors relating to built environments), and include aspects such as frequency, intensity and type of activity.

- The Chief Medical Officer (CMO) provides a set of evidence-based guidelines about the levels and types of **activity that are required at different life stages** in order to maintain good health[192].
- There is robust evidence that generally speaking the **more intense and sustained** the activity, the greater the benefits that can be achieved[192, 276, 291, 538, 820].
  - For example, when it comes to walking there is evidence that brisk walking will achieve better outcomes than walking at an average speed[276].
  - When discussing exercise intensity, it is important to bear in mind that it is relative to an individual's fitness capacity. The CMO defines moderate intensity as ≥3 METs and vigorous intensity as ≥6 METs, where MET is the ratio of a person's working metabolic rate relative to their resting metabolic rate[10].
- There is strong evidence that many positive physical health benefits require **at least moderate intensity** activity[291] to be achieved. However, even relatively low levels of physical activity can improve general physical wellbeing (no definition of 'low' is provided in the sources referred to)[276, 538].
- Several sources cite robust evidence that the greatest health improvements are observed in **those with poor levels of initial fitness** and who are the most inactive at the outset[238, 276, 291].
- When it comes to optimising the gains that can be made in general physical wellbeing, it is recommended to take part in a **range of activities** (rather than only one type), including aerobic, resistance and weight bearing activities[276].
- Some studies also argue that physical activity interventions achieve the most impact when they are **part of broader lifestyle change** interventions[363, 792].
- In terms of outcomes over time:
  - a systematic review highlights that most studies suggest that the most significant **short-term effects** on health come from an increase from **inactive to moderately active**[238].
  - when it comes to **long-term effects**, the same review cites a study analysing Canadian National Population Health Survey data which finds that only an increase from **moderately active to active** has a positive and significant impact on health.
- When considering the intensity, time, type and frequency of physical activity and improvements in health, it is important to **tailor the intervention** to the individuals' needs[033, 115, 192, 276, 615, 817]. This should include:
  - Assessing the existing health of individuals.
  - Whether they have health goals.
  - Demographic characteristics such as age.
  - Any potential risks.

For example, *"…unfit sedentary people will see greater benefits from low intensity exercise than someone who is already very fit, and they will also be more easily able to participate in low intensity exercise and less likely to incur injury."* (Cox, 2012, p17)[276].

10 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213743/dh_128255.pdf

A number of studies emphasise that the **preventative benefits for diseases and conditions are dependent on the type, dose and intensity** of physical activity[276] [291].

There is evidence of the long-term health benefits of **walking** in a study finding that: *"regular walking halved the risk of developing* **type 2 diabetes,** *which is a similar level of protection to that found from undertaking the equivalent energy expenditure on a vigorous activity."* (C3 Collaborating for Health, 2011)[813]

By contrast, for preventing **cardiovascular disease**, a systematic review cites strong evidence from a large scale cohort study that sustained activity in **aerobic activity** is required. It finds that activities such as walking and gardening have little or no impact, whereas swimming and cycling do[291].

Further recommendations about the type of activity, duration and intensity that lead to outcomes for different subgroups, are described in the table below. It should be noted that this content is based only on the reviewed studies. Note that this content should not be taken as a comprehensive list of 'what works'.

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Musculoskeletal and cardiometabolic health** | Children and young people | Weight bearing sports | 535 |
| **Maintaining a healthy weight and good health** | School aged children | At least 60 minutes of physical activity per day (at least 30 in school are necessary) (recommendation based on systematic review of 126 intervention studies) | 33 |
| **Improvements in fitness and motor skills performance** | Children who are visually impaired | Structured exercise interventions – 6–12 week interventions, two to three sessions a week | 341 |
| **Improved fitness and motor skills** | Children who are visually impaired | Interventions which lasted 6-12 weeks with a frequency of two to three times per week and a duration of 50-90 mins. Interventions include motor skill training, goal-ball movement education, rope jumping training, a gymnastics skills program, traditional Greek dances and PE classes | 341 |
| **Prevention of type 2 diabetes** | General population | Walking at any pace | 222 |
| **Prevention of osteoporosis** | General population | Loadbearing resistance type training throughout childhood and early adolescence | 792 |
| **Supporting rehabilitation** | People suffering or recovering from specific health conditions of serious illnesses | Participating in golf | 562 |

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Reduced mortality risk and rates of recurrence of breast cancer** | People living with and beyond breast cancer | A minimum of 150 mins activity per week | 817 |
| **Reduced mortality risk and rates of recurrence of colorectal cancer** | People living with and beyond colorectal cancer | 6 hours of moderate physical activity per week | 817 |
| **Improvements in strength, gait and balance (which enhance quality of life and sense of independence)** | People who have had a stroke | Strength training, flexibility training, training to enhance balance and coordination, two or three times a week for each (evidence-based recommendation) | 816 |
| **Increasing aerobic and muscular fitness** | People with multiple sclerosis | Moderate-intensity exercise performed two times per week | 615 |
| **Improvements in walking speed and endurance** | People with multiple sclerosis | Aerobic training, resistance training, or a combination of both | 615 |
| **Increasing activity** | Sedentary adults | Angling | 276 |
| **Lower-body functioning** | Sedentary frail adults | Simple dance-based exercise | 186 |
| **Chronic disease prevention** | Post-natal women | At least 30 minutes of activity, of at least moderate intensity, most days | 345 |
| **Increasing aerobic fitness** | Women seeking to avoid activities that can cause cardiovascular stress | Home-based Zumba | 666 |
| **Increased life expectancy** | Older people | Carrying out more intense physical activity for longer periods | 186 |
| **Speed, strength, aerobic endurance** | Adults with dementia | Exercise interventions – review identifies variety of impactful activities: aerobic exercise (usually walking); resistance training or weightlifting; balance and flexibility training. | 31 |
| **Becoming more physically active** | Older people with sedentary lifestyles | Playing golf | 562 |

## GAPS IN THE EVIDENCE BASE

While there is a wealth of evidence about the physical wellbeing outcomes associated with participating in sports, exercise and physical activity, there is very little evidence about the physical wellbeing outcomes associated with engaging with sport and physical activity as a **volunteer or spectator**.

There is a limited amount of evidence about the physical wellbeing outcomes associated with different sports. A rapid review of research and practice conducted by Cavill et al (2012) finds that the evidence for the contribution of sport (i.e. organised interventions that people participate in) to physical activity and health is currently underdeveloped and weak[826]. Furthermore, there are few studies which attempt to **compare the effectiveness of different types of sports, exercise and physical activities**, as noted by Taylor et al (2015, p.31)[291]:

*"A systematic review reports that while there is much discussion about optimal levels of physical activity, there is much less evidence about the relative effectiveness of different forms of exercise and sport on health."*

Reflecting on this limited evidence base, some authors point to the fact there is robust evidence that **regular physical activity** has a positive impact on physical wellbeing. Since sport is a form of physical activity, it therefore has the potential to contribute to improved physical wellbeing outcomes[826].

While the evidence covers different age groups and a wide range of long-term conditions and non-communicable diseases, there is a lack of physical wellbeing outcomes evidence relating to people in different **impairment categories** participating in sport and physical activity, as noted in a narrative review[276]:

*"…there is a lack of evidence about physical health benefits of participation in sport and physical activity for disabled people. The review also draws on evidence that in this area is broad in scope with limited relevance to any specific disability group and a lack of consensus in findings, not helped by the small sample sizes of some of the disability groups studied."* (Cox, 2012, p.12)

Many of the characteristics associated with successful interventions are not clearly linked to specific outcomes.

Despite evidence that some **ethnic groups** are at higher risk of getting cardiovascular disease[11], there is little research into the impact of physical activity for different ethnic groups. There is also limited detail of the **interrelationship between physical and mental** wellbeing. Both of those gaps are noted in a recent narrative review[291].

11 https://www.bhf.org.uk/heart-health/preventing-heart-disease/your-ethnicity-and-heart-disease

# 2. MENTAL WELLBEING OUTCOMES

It is a commonly held view that there is a link between sport and physical activity and mental wellbeing, with research looking to further investigate the foundations of this relationship and the interplay between sport and exercise and mental wellbeing outcomes. The Sporting Future strategy[12] describes a range of broad outcome areas within this relationship, including impacts on enjoyment and happiness, building confidence and self-esteem and benefits in terms of reducing stress, anxiety and mild depression. This section considers these aspects of mental wellbeing and describes the evidence base for them, as well as identifying evidence of additional outcome areas relating to sport and physical activity and mental wellbeing.

Overall, within the evidence longlist there was a broad range of items relating to aspects of mental wellbeing. Compared with some other outcome areas, mental wellbeing as an outcome area appears to be well-established. This provides a breadth and depth of evidence base from which to draw informed interpretations.

A total of 67 items in the evidence shortlist included content related to the mental wellbeing outcome area. The majority of items were related to participating only (n=66), four items included content relating to volunteering in sport and two had content relating to sports spectating.

**PRIMARY SOURCES**

4 case control studies

2 randomised control trials

1 survey

**SECONDARY SOURCES**

28 systematic reviews or meta-analyses

17 narrative reviews

4 cross-sectional studies

2 guidelines

2 rapid evidence reviews

1 policy brief

1 cohort study

1 expert opinion

**MIXED SOURCES**

3 narrative reviews and case studies

1 narrative review and a survey

12 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486622/Sporting_Future_ACCESSIBLE.pdf

A third (n=22) of the items included in the review shortlist specified geographical coverage. Broadly, these items covered the UK, Europe and North America.

A theme throughout the reporting of sport outcomes in a mental wellbeing context related to investigating sport as an intervention to manage or reduce symptoms, promoting a move away from pharmacological interventions. Many items reported effects for specific diagnostic subgroups.

## MEASUREMENT[029, 045, 115, 192, 209, 210, 264, 291, 332, 345, 356, 360 502, 521, 538, 542, 562, 633]

As this review includes a large number of systematic reviews and meta-analyses, a wide variety of individual measures have been included. Broadly, measures are either subjective or objective in nature.

A variety of objective measures were reported, mainly focusing on measures of fitness or levels of exercise carried out.

These included strength tests, endurance tests and the use of accelerometers[115, 192]. One study described using the 'Senior Fitness Test' carried out by health practitioners to provide an objective measure in changing fitness levels[264]. The authors describe this measure *"…to be a reliable and valid measure of physical fitness…"* (Cruz-Ferreira et al., 2015, p.846)[264].

Subjective measures reported in the evidence base included self-reports and observations both in relation to levels of exercise or fitness, or perceived feelings relating to mental wellbeing[291, 209, 502]. However, evidence into the validity of self-reports highlighted a likelihood for individuals to overestimate their levels of exercise when compared with objective measures (for example an accelerometer; a movement sensor)[192, 332].

Relating to the overall design of studies, evidence suggests that study design influences results, with greater effects seen in quasi-experimental design compared to RCT[210]. In some systematic reviews the authors reported the challenge in determining the experimental design employed and the measures incorporated within it. For example, Cressy reported a challenge in reporting on findings for depression whereby it was not clear whether levels of depression were self-rated or a clinical diagnosis (2011)[521].

As with physical wellbeing, the evidence base highlighted the need to improve and standardise the definitions used within mental wellbeing and the specific outcomes being measured, with a move to promoting a systematic approach to testing hypotheses with valid measures compared to baselines[356, 538, 542, 562, 360, 633].

There has been little evidence to conclusively attribute mental wellbeing outcomes to specific sports programmes, in large part due to the difficulty in assigning causality within the relationship between sports and the mental health construct being researched. This links to the challenges reported across the evidence base in relation to limitations on the availability of robust, valid findings.

A variety of explanations were provided throughout the literature on the challenges in assigning attribution to results. One study cited that it was participation in a study, not the intervention, that led to changes being measured[029]. Further studies cited the challenge in assigning causality within the relationship[291, 210] and the presence of a third, unmeasured factor being the reason for the resultant change, for example an increase in blood flow promoting cognitive changes[794], highlighting the complex interactions between multiple variables in achieving outcomes.

The evidence base highlighted the lack of high quality, standardised studies which could be used to inform their reviews[356, 209, 345, 542, 562]. In addition to this, one review considered the implications of generalising findings across sporting subcultures. The authors describe how different sports have individual subcultures which, for example, promote and link to different motivations, therefore impacting the validity of generalising results across sports[045].

## ENJOYMENT AND HAPPINESS[040, 184, 186, 238, 250, 261, 264, 266, 291, 317, 345, 637, 680, 745, 809, 812, 813, 817, 820]

Links have been made between sport or physical activity and enjoyment and happiness, which are core components of mental wellbeing (as distinct from mental health, in which field different terminology would be used). A total of 22 sources cited sport or physical activity as a source of enjoyment or happiness. These often also considered the broad concept of life satisfaction and quality of life. This demonstrates the need to be aware of the variety of definitions used within this broad conceptual arena when drawing conclusions from the evidence base. There are strong overlaps between the subdomain of enjoyment or happiness and that of self-esteem and confidence, with many underlying constructs such as self-concept appearing across the domains, tying the two areas together.

Some studies highlighted a link between sports participation and improvements in reports of **life satisfaction**[266, 291, 317]. A factor often mentioned in this relationship was the **role of social interaction**, facilitated through participation in sport or exercise[261, 184, 250, 680]. For example, a systematic review of the social impact of dance for older people cites a primary research study (depth interviews with 30 women aged 60+) which found *"…social advantages of taking part together with improvements in wellbeing and quality of life"* (Bupa, 2011, p. 9)[186].

Brown et al. (2015) highlights findings from a robust quantitative study analysing large scale survey data which suggests that **frequency of participation** does not have a significant impact on ratings of life satisfaction. Instead the authors suggest that the value of an activity may be determined more by the enjoyment derived from the activity, although further research would be needed to explore this hypothesis[261]. Supporting this, a study involving the meta-analysis of 10 UK studies reported that individuals participating in 'green' exercise activities *"such as walking/hiking in outdoor settings…"* (C3 Collaborating for Health[813], p.13) reported that the greatest impacts were seen initially at the start of the activity but then reduced over time[813]. While the effect was evidenced, the authors did not provide reasoning behind this.

One high quality study involving a randomised control trial describes the effectiveness of a secondary school-based obesity prevention programme with a physical activity and resistance training component combined with other interventions, reporting small improvements on wellbeing measures following participation[040]. The authors credit this change to the **combined nature of the intervention** programme, citing that changes in muscle fitness, autonomy support and screen time use facilitated a positive change in psychological wellbeing[040]. This finding is supported by Cabane and Lechner (2015) who describe an overall improvement in health through fitness, through sports participation, as being a contributing factor to changes in life satisfaction scores, as opposed to sport and physical activity participation directly impacting on life satisfaction[238].

Few studies cite **specific sports or types of physical activity** as affecting enjoyment or happiness. In terms of differences between team and individual sports, Fujiwara et al. found significant positive associations for both team sports, which enhanced social interactions, and individual sports (including swimming) (2014[809]).

However, a statistically significant **negative association** was reported between life satisfaction and general fitness, including activities like going to the **gym**[809]. Given the observational nature of the data, however, the authors note that the findings should be taken with caution. A high quality study analysing national UK survey data reports that **cycling** was reported as having a negative effect on life satisfaction[238], with the authors suggesting that this negative association could be related to safety issues on the roads.

The evidence base does not tend to determine causality in the relationship between sporting behaviour and happiness and, as highlighted above, the role of additional confounding factors should not be ruled out.

A study involving a meta-analysis of national datasets suggests that sport should be **promoted as a source of pleasure**, in order to discourage unpleasant thoughts, mostly at the start of the exercise, and to remind individuals of the enjoyment they will feel as a result of the exercise[266].

Other factors reported in the relationship between sport and happiness include the **role of self-concept**; the view we have of ourselves considering the views of others around us. A randomised control trial involving adolescents highlighted improvements in wellbeing following increased muscular fitness. The authors recommend a programme of focused muscle strengthening activities three times per week for adolescents to promote this wellbeing effect[040]. In this research a link is made between the importance of others' views as a motivator to change one's physical appearance, with sport being a conduit for this change.

## Volunteering, sports fandom and life satisfaction

A small number of sources support a positive relationship between volunteering in sport[637, 812] and sport fandom[630], in promoting life satisfaction and reducing negative emotions. These sources highlight increases in volunteers' positive feelings, with one source drawing on high quality quantitative evidence reporting the *"…feeling that their life has a sense of purpose, that they are doing something important, feel a sense of pride, and that their life has meaning."* (Williams, & Jacques, 2015, p12)[637].

The same source finds that long-term volunteers show significantly higher levels of wellbeing compared with new volunteers, suggesting that length of participation is important[637].

The table below identifies some subgroups of sport participants discussed in the studies reviewed, and lists the outcomes evidenced for them, in relation to happiness, life satisfaction or quality of life.

| Participant subgroup | Outcomes evidenced in relation to happiness, life satisfaction or quality of life |
|---|---|
| Children and young people | Mixed findings reported with favourable results for muscular fitness interventions on wellbeing for adolescents[040] but variable associations reported for primary and secondary school children in a longitudinal study[820]. |
| Older adults | Positive improvements in life satisfaction [264, 745] with interventions including 50-minute classes taking place three times per week |
| Post childbirth | Positive associations were described for postpartum women participating in exercise reporting higher life satisfaction, both at six weeks' post childbirth and at a one-year follow-up[345]. |
| Participants with advanced stage of cancer | Seated exercises were found to slow the overall reduction in quality of life, in an RCT with 38 women with advance breast cancer receiving chemotherapy[817]. |
| Cancer patients' post-treatment | A positive impact on quality of life was evidenced through participating in exercise, although this effect was not found during cancer treatment[817]. |
| Gender differences | Taylor et al. reported a greater impact in life satisfaction for men who take part in physical exercise compared to women[238]. |

## CONFIDENCE AND SELF-ESTEEM

**034, 045, 184, 210, 276, 291, 352, 534, 535, 542, 562, 630, 637, 680, 745, 792, 812, 820**

Sport and physical activity as a means of increasing confidence and self-esteem was described in 21 studies, with suggestions highlighting the role of learning a new skill and demonstrating competence feeding into this. There are strong overlaps between some underlying theoretical constructs cited in the evidence within this subdomain and those included within the subdomain of enjoyment and happiness (above), with many studies linking findings to overall mood.

Studies indicated a mostly positive association between participating in sport and increased self-esteem and confidence[184, 534, 745, 680] both in the short term and sustained in the longer term[820]. There is also some evidence to suggest that positive improvements can occur even following minor increases in physical activity (Roberts and Brodie, 1992)[792] (the study does not define 'minor').

The idea of **empowerment** through participation in sport is described as a factor in increasing self-esteem and confidence in one systematic review of high quality studies[184]. Other linked improvements cited in the evidence include improvements in **resilience, sense of self-worth**, and **self-control**[034, 045, 210]. While causality is not determined in the evidence, it is suggested that sport brings about these benefits by providing an opportunity to develop new skills, mental toughness and resilience – all of which feed in to improved self-esteem[562,542].

When targeting populations of **at-risk youth**, a literature review reports that there is evidence from multiple studies suggesting that sport participation can serve as a tool to overcome a wide range of social inequalities, building interpersonal and other skills which translated into improved pro-social behaviour and improved self-esteem and self-worth[542] (as discussed in the next chapter on individual development).

The role of **self-concept**, knowing one's own limits and individual qualities, is described as an important element of wellbeing in one systematic review of quantitative studies[352]. The authors of this source (Babic et al., 2014) evidenced a link between young people scoring highly on self-concept measures and an increased likelihood of participating in sport [352]. However, the evidence does not assign causality within this relationship, and it may be that those with high self-concept might be more drawn to sports participation than individuals who score lower on this measure.

Studies report the role of self-concept in relation to **body image** being linked with self-esteem and sports participation[276, 210]. In a substantial review Cox (2012) draws on a number of studies to report that improvements in self-esteem are indirect and arise from positive changes seen in physical fitness and appearance; these effects are reliant on continued participation in sport, with greater impacts on self-esteem for individuals where changes in weight and physical appearance are most noticeable[276]. A meta-analysis reports where participants did not meet their intended goals through sport, for example not meeting weight loss or fitness targets, the effects on self-concept were negative[210].

Studies support the view that participating in sport fosters **positive relationships** which in turn has a positive impact on self-esteem and confidence. Bangsbo et al. (2016) identify a variety of contributing elements to realising this outcome, including parental support for participation, the role of peer-groups and gaining acceptance in joining a sport group, and the role of a socially supportive environment[535]. Similarly, the relationship between participant and coach has been highlighted as a contributing factor in the positive relationship between improved self-esteem and confidence and sport[045]. While not evidenced, it is suggested this is, however, a delicate balance as a high-pressure, 'win at all costs' position promoted by sports coaches could have a detrimental effect on self-esteem[045].

## Volunteering and self-esteem/ confidence

Two studies described evidence of a connection between volunteering in sport and self-esteem and confidence. The evidence compares self-esteem measures for volunteers and non-volunteers, and shows increased levels of self-esteem reported for volunteers. These levels are further increased when volunteers are given roles with increased responsibility[812, 637]. One study involving a survey of 515 American adults suggests that sports fans experience improved self-esteem through the promotion of a shared identity with the group, linking to their self-concept, promoting social self-esteem through identifying with the sports team, with this team identification *"…providing a buffer from feelings of depression and alienation and fosters feelings of belongingness and self-worth…"* (Sweeney & Quimby, 2012, p3)[630].

Overall, there was no causal evidence determining the interplay between the variables of confidence and self-esteem, and sport. The studies available hypothesise potential causal direction based on commonly held intuitive beliefs. The lack of research evidence to support these views leads to challenges in further drawing out broader implications or knock-on effects from this body of evidence.

# REDUCTION OF ANXIETY, STRESS AND DEPRESSION[028, 029, 034, 035, 186, 192, 206, 209, 210, 229, 250, 276, 333, 340, 360, 365, 385, 521, 562, 563, 680, 745, 792, 813, 817]

## Anxiety

The benefits of sport as an intervention to relieve the symptoms of anxiety, stress and depression were identified in 36 items.

Studies broadly support a link between participating in exercise and reduced levels of anxiety[229, 210, 250, 206, 813]. In one systematic review of randomised control trials, exercise was tested as an intervention for individuals who did not have an anxiety disorder diagnosis and was found to reduce anxiety[229]. Drawing on analysis of the Scottish Health survey, one review reports that "…daily physical activity in any guise was associated with a lower risk of psychological distress and a dose-response relationship was apparent with a minimal threshold of 20 minutes a week." (Cox 2012, p.68)[276]. Studies cite difficulties in assigning causality within the relationship and some also note the presence of small effect sizes[210, 817].

Some research suggests the association between participation in sport and lower levels of anxiety is limited to the **duration of the exercise period**[340, 792], with one systematic review of RCTs demonstrating that the effects were not maintained at post-intervention follow-up (over 12 weeks[340]).

There is little evidence detailing the effects of **specific sports**:

- Research reporting the impact of playing golf on wellbeing[562] found mixed results with one small scale study finding a positive relationship between playing golf and reduced levels of stress and improved cognitive function. The research also cited evidence from a study (tracking 34 ageing recreational male golfers) which showed that golfers could experience inconsistency of mood, including negative mood states such as anger, depression and fatigue, dependent on their performance.
- A small scale pilot study which used a control group found that using golf as a rehabilitative intervention for individuals who had suffered a stroke supported improvements in participant's rated mood with corresponding improvements in coordination skills[562].
- A systematic review cites evidence from several studies of varying quality that yoga-based treatment interventions for children and young people with attention deficit hyperactivity disorder may help to reduce anxiety, hyperactivity, impulsivity, oppositional and social problems[028].

A small number of studies considered the relationship between sports participation and stress or anxiety within **specific population subgroups**. The findings were mixed:

- There was a positive relationship between exercise and reduced levels of stress for participants with rheumatoid arthritis (drawing on a small scale focus group study) [680], and anxiety in breast cancer patients (drawing on high quality studies including RCTs) [340]. However this reduction was not observed at longer follow-up times [340].
- Exercise and sports participation was linked with benefits in stress management for individuals diagnosed with post-traumatic stress disorder [562, 385]. This was specifically highlighted in a systematic review for a subgroup of injured combat veterans who achieved this benefit from participating in a range of different sporting activities including mountain climbing and competing in the Paralympic Games[385].

The role of **exercise as a treatment intervention for anxiety** has been considered by some reviews[276, 209, 029]. Cox cites the results from a systematic review which shows the positive effects of an exercise intervention in reducing anxiety scores for patients with a chronic illness, compared to those who did not receive an intervention[276]. The effect size reduced over time, and the authors suggest that this could be due to adherence issues over time to the intervention programme. Similarly, another source reports on the results of an exercise intervention aimed at children and young people with a diagnosis of attention deficit hyperactivity disorder. The results showed that those who had participated in three or more sporting activities were more likely to see a reduction in anxiety levels, compared with those who participated in fewer than three[276]. Similarly, another source cites a case control cohort study, where adults with a bipolar disorder diagnosis who participated in a walking group intervention provided lower scores when self-reporting on their anxiety levels[209]. Another source cited research comparing an exercise intervention with a placebo control group, which found that *"a structure[d] exercise programme was as effective as medication in reducing symptoms of panic."* (Dale et al., 2015, p.2)[029].

One study reports on the findings of an independent large scale survey of the public which shows a positive association between people who volunteer in sport and a reduced likelihood of feeling anxious, with individuals who did not volunteer being more likely to feel depressed[637].

## Depression

There was a similar relationship identified between exercise participation and a reduction in the symptoms of depression[029, 034, 035, 186 192], with findings described for the general population as well as subgroups with a diagnosis of depression[360]. Here one source cites an extensive meta-analysis which shows that specifically moderate, regular exercise can provide positive effects for depression and anxiety[276]. Similar conclusions are drawn for studies focusing on older adults, including dancing and aerobic dancing demonstrating positive effects for older adults, reducing depressive symptoms[365]. Another source concludes that exercise interventions may be a feasible additional intervention for depression, although the authors note concerns over the small sample sizes and other limitations, which means that these results must be interpreted carefully[333].

While there is little evidence comparing the effects of **different types of exercise**, one study analysing secondary data of female US students reported that **moderate and vigorous exercise** had a 'moderately negative' association with depression[521]. Melo et al. (2016) conducted a systematic review and highlighted the variability in the positive impact of exercise on depression, which effectiveness was dependent on the specific type of depression diagnosis. For example, for individuals with a bipolar diagnosis, exercise could exacerbate the mania symptoms[209].

Another systematic review reported mixed results on the effects of exercise on depression, concluding that during the period of exercise intervention there is a reduction in depressive symptoms for older adults diagnosed with depression. However the long-term effects or implications of exercise interventions were not evidenced[563].

# OTHER MENTAL WELLBEING OUTCOMES

Fourteen sources described additional outcomes for mental wellbeing which did not align to the key outcome areas above. Broadly, these fall into four categories:

- Cognitive outcomes.
- Dementia.
- General mental wellbeing.
- Emotion regulation.

## Cognitive outcomes[028, 064, 235, 266, 363, 533]

Improvements in terms of cognitive function were discussed in some of the literature reviewed. Here a source points to the results from several high quality studies which show that aerobic exercise has been shown to have positive effects on a range of cognitive functions, where regular exercise can support **changes in brain function** that underlie cognition and behaviour[028].

Additionally, **improvements in concentration** have been cited[028 039 533] including for people with severe mental illness drawing on systematic review of high quality research studies[184].

Specific benefits were described for **older adults** with positive effects demonstrated through attention and fluid intelligence[13] where participants took part in a task-switching training programme[235]. In line with this, older adults who exercised demonstrated a reduction in the pace of mental functional decline[064, 363].

Similar findings have been found for **older women,** where a large scale cross-sectional US study found that those who take part in regular physical activity demonstrated lower levels of cognitive impairment compared with those who were inactive[363].

## Dementia[186, 192, 276, 330, 533, 813]

Broad findings suggest a positive impact of regular activity on **reducing the risk of dementia**[192, 276, 330]. Additional support for the positive effects of sport on overall functioning in older adults with dementia is found in a systematic review, where weight training specifically, was found to have a positive effect on neuromuscular function and memory performance[330].

Evidence into the therapeutic benefits of sport and physical activity for older **adults with dementia** was mixed. Studies link the need for cognitive activity to be stimulated to slow decline in individuals with dementia [533]. Here one source reports that while many forms of physical activity often do not provide this necessary level of stimulation, dancing often does: *"…dancing involves precise physical activity, listening to the music, remembering dance steps and taking your partner into account, which is very mentally testing."* (Verghese et al. 2003)[186].

There is evidence cited from epidemiological studies which suggest that **exercise reduces the risk of Parkinson's disease**. Additionally, this study reported exercise participation as having positive effects on quality of life for those diagnosed with the disease[813].

## General improvements in mental wellbeing[029, 208, 340, 363, 358]

Evidence which demonstrates positive impacts of sport or physical activity on general mental wellbeing (i.e. studies which do not specify a particular aspect of mental wellbeing, but simply refer to it as a general concept) includes the following:

- Dale et al. (2014) cites studies which demonstrate that 20 minutes of physical activity per week, regardless of the activity, has positive effects on mental health[029].

13 Fluid intelligence is defined as the ability to solve new problems, use logic in new situations, and identify patterns.

- A literature review reports that there is moderate evidence that physical activity in open spaces, parks and trails is promoted as having an overall positive impact on mental health[358].
- A meta-analysis reports that there is evidence that body orientated yoga can contribute to positive outcomes for people with mental health disorders[208].
- A systematic review of high quality evidence found that general positive mental wellbeing impacts have been noted for frail older adults participating in exercise[363].

As noted earlier, some evidence questions the **long-term impacts** of an exercise intervention on mental wellbeing. For example, Mishra et al. (2014) carried out a systematic review and meta-analysis and found that for cancer survivors, positive effects on emotional wellbeing observed during the intervention and in the weeks following was no longer observed at six-months' follow-up[340].

### Temperament, emotion regulation and resilience[034, 045]

A systematic review cites evidence from an RCT of the positive effects on temperament and self-concept among **children with behavioural disorders** who participated in karate classes over 10 months[034]. These effects were found to be transferred across situations, from the exercise class to school and home life. A range of elements incorporated in karate including concentration and self-regulation were identified as factors which led to a change in temperament.

Clark et al. reports on evidence of a positive association between participation in sports and emotional self-regulation (2015[045]). This source cites moderate quality evidence that swimming and basketball programmes may offer the benefits of developing these skills for **young people at risk of substance misuse**; improvements in self-regulation are linked with improved delayed gratification which can reduce the risk of problem behaviours, including substance misuse and obesity[045].

A systematic review highlights evidence from several studies about the role of exercise in **supporting resilience**, which in turn impacts a wide range of physiological and psychological factors including; aspirations, attitudes and levels of general optimism and mental toughness[045].

## NEGATIVE OUTCOMES[045, 210, 792]

There is some evidence that sports participation can result in negative outcomes in relation to mental wellbeing. For example, one study exploring sports participation among a sample of 220 female university students in the US reported negative impacts on **self-concept** when participants were unsuccessful in meeting weightloss or fitness targets[210].

Another source, drawing on quantitative survey evidence, reports that sports participation can lead to increased levels of **anxiety and risk taking** behaviour in young people. Increased anxiety was reported in a study of 416 field hockey players and was linked with the pressure of parental expectations and young people perceiving they are not competent at the sport they are playing[045].

Another review cites evidence from studies of the potential for participants to develop a **training addiction** and of over-training having a negative impact on mental health. However, they do not provide further explanation around this risk factor[792].

Another source cites evidence from an RCT study involving 40 participants, finding that **withdrawal from regular aerobic activity** may provoke depressive mood symptoms[745].

## CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS[034, 035, 064, 115, 186, 205, 206, 235, 264, 276, 330, 332, 333, 340, 345, 521, 680]

- There is robust evidence that the **social interaction** element facilitated through a sport or physical activity intervention can be a decisive factor in achieving mental wellbeing outcomes[261, 184, 250, 680, 186, 535].
- A large number of studies highlight **regularity of participation** as a feature of successful interventions, ranging from activities once a week to multiple times a week, up to daily[029, 040, 115, 264, 192, 276, 330].
- **Longer duration or ongoing participation** is repeatedly noted as a characteristic supporting improved outcomes[034, 276, 340, 792], with one large scale study finding greater outcomes for long-term volunteers in sport, compared to new volunteers[637].
- Interventions **combining** different approaches, types of physical activity, and/or other forms of support were found to be effective in a number of studies[040, 238, 276]. For example, a study of an intervention to improve the psychological wellbeing of adolescent boys found that a combination of exercise (increased muscular fitness), reduced screen time and an increased sense of autonomy and social connectedness was effective[040].
- A specific component related to the above point, noted in some interventions, was the value of including **goal setting** and **self-monitoring**[034, 345] (bearing in mind the potential negative impact of missing targets, as described above under 'negative outcomes')
- There is also evidence that **some characteristics should be avoided in relation to some subgroups/ subdomains**:
  - Some have advised caution in using vigorous exercise, as it could have a negative association with depression and the mania symptoms of those with a bipolar diagnosis[521, 209].
  - Isolated studies find negative effects from specific types of sport or physical activity (general fitness such as going to the gym[809]; cycling[238]) although causality has not been robustly determined in these cases, so these findings should be taken with caution.

The table below details further findings on interventions with specific subgroups.

| Outcome | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Improvements in self-concept** | Children and young people with behavioural disorders | Exercise programmes should be designed to provide meaningful experiences in engaging young people in sport, with opportunities for young people to develop behavioural skills (self-monitoring, self-assessment, goal setting) (Recommendation only) | 34 |
| **Cognitive function** | Adolescents | Vigorous/intense physical activity (review gives no further detail) | 332 |
| **Student engagement and academic success** | Students | Resistance- and strength based-training programmes | 521 |
| **Reducing depression severity** | Individuals with depression | Walking 30 minutes per day for 10 consecutive days or 20 minutes of running three times a week for 10 weeks | 276 |
| **Improved psychological wellbeing** | Post-natal women | Goal setting and self-monitoring behaviour | 345 |
| **Improved quality of life rating** | Cancer survivors | Moderate to vigorous exercise, can include aerobic activity and strength- and resistance-based activity | 340 |
| **Reducing depression severity** | Older adults (60+ yrs) | Exercise interventions should be tailored to individual ability | 35 |
| **Reducing depression severity** | Older adults (60+ yrs) | Supervised training programmes consisting of: aerobic, resistance training, alternative exercise and combined aerobic and resistance training. | 333 |
| **Cognitive function** | Older adults (65+ yrs) | Aerobic activities (Recommendation only) | 235 |
| **Reduced risk of dementia** | Older adults (typically 60+/65+ yrs) | Ballroom dance | 186 |
| **Improved psychosocial outcomes** | Older adults (65+ yrs) | Objective feedback on performance and linking the outcomes of participation on everyday life outcomes (Recommendation only) | 205 |
| **Improved psychological outcomes (mood, anxiety, depression, quality of life)** | Older adults (60+ yrs) | Yoga-based activities | 206 |

| Outcome | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Improved psychological wellbeing** | Older adults (average 85 yrs) | A one-hour exercise programme once a week for eight weeks | 64 |
| **Increased neuromuscular function** | Older adults with dementia | Weight training | 330 |
| **Improved quality of life rating** | Frail older adults (61–89 yrs) | A 12-week training programme with one hour of exercise three times per week | 115 |
| **Life satisfaction** | Older women (65–80 yrs) | Creative dance: 50 minutes, three times per week for 24 weeks. | 264 |
| **Improved psychological wellbeing** | Patients with rheumatoid arthritis | Physical exercise programmes should be tailored to individual needs and aim to overcome the barriers individuals put in place. (Recommendation only) | 680 |

## GAPS IN THE EVIDENCE BASE

As with physical wellbeing, there is limited reporting of longitudinal studies to highlight the long-term effects or impacts of sports on mental wellbeing, or to consider the sustainability of interventions.

Evidence around volunteering which compares sports volunteers with non-sports volunteers; it may be of value to compare outcomes for sports volunteers against those in other sectors to consider the specific impacts of the sporting aspect of their volunteering.

The evidence base leans towards a focus on broad, overarching concepts of mental wellbeing. Articles were less likely to consider the underlying constructs underneath the broad brush terms like ‘anxiety’. This lack of specificity has implications in both truly understanding the relationship being measured and the transferability of findings into practice.

Furthermore, the evidence focused on reporting improvements to observable symptoms, failing to consider the underlying elements or aspects to promote sustainable change or lasting improvements. Areas considered under mental wellbeing, for example happiness, are complex concepts which often rely upon self-reporting measures to determine levels.

While the evidence strongly suggests a positive relationship between sport and physical activity and mental wellbeing, there is scope for further research to build a more consistent understanding of the optimum levels of activity, to inform an understanding of the existence or extent of a dose-response relationship.

# 3. INDIVIDUAL DEVELOPMENT OUTCOMES

The Sporting Future strategy discusses individual development in terms of improved educational behaviour and attainment, better employment prospects, greater self-efficacy, and tackling the problems of NEETs (those not in education, employment or training). In this chapter, each of these impacts is reviewed in turn and then additional impacts presented.

A total of 65 sources that cite evidence about individual development outcomes have been included in this review.

**PRIMARY SOURCES**

2 case studies

1 case control study

1 randomised control trial

1 cohort study

1 survey

**SECONDARY SOURCES**

23 narrative reviews

14 systematic reviews or meta-analyses

3 cross-sectional studies

2 rapid evidence reviews

1 guideline

1 policy brief

2 cohort studies

2 economic impact assessments

1 expert opinion

1 case study

1 evidence briefing

**MIXED SOURCES**

5 narrative reviews and case studies

2 narrative reviews and interviews

1 narrative review and economic evaluation

Overall, the evidence base focused on participants, with only four of the studies discussing the impact on volunteers.

Roughly half of the studies indicated their geographical coverage, with the UK, the US and Europe most often cited.

Much of the literature on individual development focused on young people rather than other age groups.

A major challenge identified by the reviewed sources was the lack of consistent measurement techniques and overall difficulties for evidencing qualitative impacts. Owing to this, currently the evidence base cannot establish a strong causal relationship between individual development and physical activity/sport participation[145 238 542].

Readers are often advised by the authors to treat the reported findings with caution due to methodological weaknesses of some of the studies[210], the risk of publication bias[203] or the risk of participants misreporting their physical activity levels[137].

## Measurement

Most of the measurement techniques used by studies in this outcome area relied on self-assessment and self-reporting: interviews [275,811,644] and surveys[502,644]. It was unclear from sources whether instruments were validated. This could make the data less reliable due to respondent bias or respondents' inability to accurately assess outcomes.

Several studies used large, cross-sectional datasets (Eurobarometer, German Socio-economic panel, Canada's national population health survey) to link data on physical activity with recorded demographic data.

One study developed their own data-valuing model using data of more than 160,000 participants in sport for development projects over a five-year period[275].

Another[238] conducted an experiment tracking how many job interviews applicants whose CVs included sport activity would receive compared to those applicants whose CVs did not.

The design of the study can influence the reported effect of the intervention. For example, a literature review found that studies of a higher quality showed stronger links between physical activity and educational outcomes[495]. Meta-analyses were criticised by some for failing to establish correlations, whereas narrative reviews were challenged for their reporting bias and tendency to focus on successful practices, ignoring the failures[275].

Given the lack of consistent measurement methods[332, 663], several studies called for the introduction of a consistent approach to measurement. A draft guideline on how to measure physical activity outcomes (applicable to all domains) is proposed by MacCallum, Lisa et al. (2014)[538] and included below:

- Establish baseline data on physical activity levels and participation in various types of physical activity.
- Measure physical activity levels at the country, town/city/rural area and community level. Specifically track changes driven by occupational, domestic, leisure and transportation factors.
- Disaggregate by age, gender, culture, income levels, location and disability. Data should capture results for both adults and children.
- Evaluate school physical education and school sports programmes against international benchmarks, and identify strategies to improve and invest.
- Track the growing costs and consequences of physical inactivity.

## IMPROVEMENTS IN EDUCATIONAL BEHAVIOUR AND ATTAINMENT[093, 137, 203, 210, 241, 271, 275, 276, 287, 291, 302, 332, 424, 495, 502, 504, 505, 533, 534, 535, 536, 538, 542, 644, 645, 661, 792, 794, 813, 815, 820, 826, 829]

There is a growing body of literature that explores links between physical activity/sport participation and improved educational behaviour and attainment. In this review, most of the included studies focus on school-age young people.

On balance, the literature suggests that there is a small to moderate positive association between physical activity/sport participation in educational settings and academic achievements and behaviour[203, 276, 532, 534, 538,792,794,820,829], even when increased exercise time resulted in less teaching time[093,794].

The **positive impact** (cited in studies ranging from meta-analysis, systematic reviews and narrative reviews to rapid evidence reviews) was manifested both **directly** as well as **indirectly** by enhancing skills that are often predictors of academic success, as shown in the following table:

| Direct impact | Indirect impact |
|---|---|
| Improved grades[210] | Self-control and concentration[502,644, 794, 820] |
| Better engagement with classroom lessons[203] | Team-working skills and time management[644, 661] |
| Improved school attainment[271,291,820], including for groups that are difficult to engage[829] | Social relationships[661] |
| Reduced absenteeism[093,276,291,794] | Memory[792,813] |
| Improved overall classroom behaviour[794] | Perceptual skills (visual and motor processing skills)[792,794] |

One systematic review of 56 studies[210] found that there was a more prominent impact on grades than on standardised achievement tests (IQ tests). Another factor that correlated with higher impact was age – children at a young age benefited most as evidenced in two systematic reviews[332, 794]. Very few studies referenced individual subjects, but those that did mentioned maths[302, 276, 792] and numeracy[302] as areas where improvement was observed in case control setting.

### Impact across subgroups identified in reviewed sources

Some studies (a mixture of literature reviews[495, 542, 645, 794,], a systematic review [332,], narrative reviews [533, 815], analysis of Understanding of Society data[830] and a UK cohort study with 600 people[504]) explored the impact of physical activity on educational outcomes and behaviour for **specific subgroups**, though most studies were not comparative. Positive impacts were identified for children of a minority ethnic background[495], low-income children[495], girls[332, 794,533,] women[830] and disaffected young people[542, 504, 645, 815].

For example, a five-year programme of organised physical activities[504] involving 750 **young people** (aged 11–16) in five secondary schools in East London found that the majority of students showed an improvement from their baseline profile of school engagement and class behaviour, and half maintained it until they left school. However, the study noted that the positive improvements tended to decrease over time following the end of the activities (after 12 months for most pupils).

With regards to the impact of sports on girls' educational outcomes, two of the reviewed sources cited evidence that **girls** benefited more from physical interventions than boys[332,794]. However, one systematic review suggested[332] that this could be explained by the dose-response effect – adolescent boys are generally more active than adolescent girls, which could explain why the stimulus of physical activity had stronger benefits for girls.

## Attribution

Very few of the studies attempted to explain the relationship between physical activity and sport participation and educational outcomes. Those that did broadly focused on two types of explanations: physiological and psychosocial.

- The **physiological arguments** focus on the impact physical activity has on the brain physiology[203, 210, 332, 291, 535, 536, 794]. One of the studies[291] cited research conducted by the Centers for Disease Control and Prevention (2010), which suggests that physical activity enhances the brain activities responsible for attention and information processing, and suppresses the activities responsible for craving and pain. A similar point is made by other studies[210, 332, 794], which explore how the chemical reactions taking place in the brain as a result of physical activity (i.e. higher norepinephrine and endorphin release) as well as other physiological effects are associated with improved concentration and learning ability.

  Other theories include the novelty arousal theory[203,794] (a shift from normal routine, i.e. a break, could help the brain focus on the subsequent tasks) and the contextual interference theory (learning how to perform complex motor skills simultaneously can be transferred into the classroom)[203].

- The **psychosocial explanation** is more varied. A UK qualitative study of sport-based interventions aimed at youth crime reduction[424] highlighted the **mentoring relationship** that could form between coaches and participants in team sports as a conduit that could support learning. A similar observation was made in a large scale study looking at graduate employability[644].

  Other studies looking at a diverse group of participants (Belgian girls[241], US university students[505], school aged children[794]) suggest that sport participation can foster the feeling of belonging which in turn could increase students' motivation and attendance rates. For example, in one of the evaluated UK school-based sport programmes[794], students reported that they were looking forward to attending school on the day it was taking place. Some studies (cited in a systematic review[203]) note that physical activity is associated with positive emotions which in turn facilitate better problem-solving and team working.

  However, one limitation of the psychosocial theories is that they rely on self-report measures or observations, which, as discussed in the measurement section of this chapter, can create consistency challenges and have a risk of bias.

Linking back to the chapter on mental wellbeing, Trudeaus and Shephard (2008, 2010 cited in a literature review[794]) argue that physical activity improves academic performance by enhancing pupils' mental health and positive social behaviour.

Overall, it is difficult to assess the extent to which educational outcomes can be **attributed** to physical activity and sport participation, with the direction of cause often remaining unclear. For example, a study using the Understanding Society data[271] found that swimming is associated with a 7% increase in the likelihood of going on to further education. However, it is likely that children who took up swimming classes came from more affluent families and were therefore more likely to go on to further education. Similarly, a non-intervention study of 11,529 children (Barros et al., 2009)[093] found that classroom behaviour was better for pupils with daily breaks of at least 15 minutes. However, it is not clear if the impact should be attributed to the break or the physical activity during the break.

The majority of the studies included in this review **could not confirm causality**, largely due to the large number of external factors that could play a role, with some suggesting that the current evidence is inconclusive or ambigious[275, 820, 826].

In contrast, recent research involving 9,700 US high school students[644] (Irvin et al) found that **compared to other extracurricular activities** such as drama or debating, team sport is the only extracurricular activity that had a consistent and significant positive impact on students' grades at school.

# POSITIVE IMPACT ON EMPLOYMENT OPPORTUNITIES

**014, 137, 140, 145, 238, 271, 276, 302, 424, 533, 538, 542, 643, 644, 651, 792, 811, 826**

The role of physical activity/sport participation on employability has been explored not only in terms of employment opportunities but also in terms of earnings, job performance and job satisfaction.

This review identified 18 studies that cited employment-related outcomes.

## Impact on employability

Overall, the evidence suggests that there is a positive association between physical activity/sport participation and **employment opportunities**[238, 271, 424, 533, 651, 137, 145, 140, 542, 302, 644, 811], though many authors qualify their findings noting that it is difficult to establish a causal relationship, often due to the large number of external factors[651]. For example, examining data from the German Socio-Economic Panel, Cabane (2013)[238] found that physically active unemployed women are more successful at finding a job, but noted that the physical activity may be an indicator of already successful behaviour (such as self-control and discipline, behaviours which are essential when searching for a job) rather than a driver of such behaviour. Similarly, analysis of Understanding Society data and a survey with 1000 female business executives showed that women who play sport are more likely to be in senior management positions. However, it is unclear whether sport participation developed, or just enhanced further their skills such as concentration, resilience and adaptability[830].

Related to this, even though Kavetsos's 2011 analysis of the 2004 Eurobarometer cross-sectional survey[238] found that physically active people are more likely to be employed and that probability of employment increases with the **frequency of exercise**, it could be that a strong labour market provides the financial opportunities for higher levels of physical activity.

## Impact on earnings

Several large scale studies using data from Sweden, the US, Germany and UK, found a positive association between physical activity (either in childhood or adulthood) and levels of **earnings**, though the impact was more prominent for males[238 276 538 644]. Studies (a large scale meta-analysis, an intervention with 540 Cornwall-based factory employees and a trial and focus group with 201 Bristol-based volunteers) also found that physical activity contributed to higher **job productivity** and **motivation**[276].

With regards to job satisfaction, Fujiwara (2014) examined data from the UK Understanding Society survey, concluded that the main effect of playing any sport is not significant so it is only among people with high income that playing any sport is associated with higher job satisfaction[271].

## Attribution around the link to employment

Some of the studies explored the reasons behind the positive relationship between sport and employability. The most prominent contributing factors were identified as increased networking opportunities, improved soft skills and employers perceiving physically active individuals to be healthier and more productive[140, 145, 276]. Related to this, a Comic Relief report[651] (case study research with five projects: three in the UK and two in South Africa) highlights the dual function of sport as a platform where already taught skills can be reinforced/ practised or new ones acquired.

## Type of sports

There is little reported evidence on the types of sport that delivers most benefits, with research by Lechner, M and P Downward (2013)[643] being one of the few studies. Undertaking a matching analysis of three major surveys (Active People Survey, Annual Population Survey, Active Places Survey), they concluded that team sports, such as such football, cricket, rugby, netball and basketball, contribute most to employability, and outdoor activities contribute most to income. However, the direction of cause remains unclear. There is also variation by gender.

## Impact across subgroups identified in reviewed sources

The link between employment and sport participation was most evidenced for **young people** (though this could be due to the greater focus on this age group in the literature)[238, 651, 644, 302]. Some studies offer possible explanations for this link, with the development of soft skills such as team-working, communication and discipline being the most often cited[651, 644, 830].

A 2013 SIRC review[644] that involved a survey with 6000 graduates and 100 employers as well as analysis of the Active People Survey included the following findings:

- Both graduates and employers felt that sport participation gave job applicants an advantage.
- The impact was further magnified if, in addition to participating, graduates were also engaged as volunteers or organisers.
- Employers reported that many workplaces use sport as a networking opportunity so continued sport engagement could boost employability with ageing.
- Graduates who were engaged in organised sport while at university had a higher salary than graduates who never took part in organised sport at university.

- This trend persisted during employment, with those reporting that they are still physically active being the highest earners.
- The difference in income was even more significant for non-graduates: non-graduates who participated in and volunteered for sport activities had an income higher by an average of £11,856 than non-graduates who did not engage in sport activities.

However, a small number of employers (6%) expressed doubts that sport participation can help graduates find a job.

It should be noted that a subsequent evidence review by Brunel University and sportscotland[826] raised concerns about the methodology of the SIRC study, noting that a respondent sample was not representative of the student population.

Other groups where a positive relationship between sport participation and employment was reported included:

- **women**, including in male dominated industries[533] (a literature review of high quality UK studies).
- **young people with intellectual disabilities**[811] (a study of the Youth Unified Sports Special Olympics programme).
- **disaffected youth**[424,542] (small number of case studies); literature review into UK-based sport intervention programmes targeting disaffected youth found that participants built strong relationships with their mentors, developed transferable skills and felt less marginalised[542].

## TACKLING THE PROBLEMS OF NEETs [275, 276, 646]

While there is a lot of research on the impact of physical activity and sport participation on employability, very few studies focus specifically on NEETs. The Office for National Statistics define NEETs **as young people aged 16 to 24 who are not in education, employment or training**. This review identified three sources that cited NEETs-related outcomes, although it is important to note that it was not the focal point of their research. The sources used a range of methodologies as follows:

- One conducted a literature review, interviews, case study research and data valuing model using randomised data from >160,000 participants[275].
- Another reviewed meta-reviews, cross-sectional studies, longitudinal and cohort studies[276].
- The third discussed case studies in Italy and the UK[646].

All three sources reported a positive association between sport participation (and in one case[276] volunteering) and **employment outcomes**, although one[275] stressed that the impact is moderate.

None of the studies established a causal relationship between outcomes and physical activity but two[276, 646] hypothesised about the drivers behind the recorded outcomes:

- In a discussion paper presenting a model where social ties and job status co-evolve through time, Brammoulle and Saint-Paul, 2004[276] suggested that unemployed individuals (not necessarily NEETs) benefit from the **interaction with employed individuals**.

- Case study research focusing on young people involved in/at risk of criminal behaviour highlighted the **positive values** that sport can instil in young people[646]. It also stressed that sport is a potent tool for tackling **social exclusion** as it has a wide appeal that can engage hard-to-reach young people.

Problems associated with NEETs include **depression** (23-year-olds without qualifications are twice as likely to be depressed as those with qualifications) and **anti-social behaviour** (men who have been NEET are five times more likely to have a criminal record[14])[276].

However, the three sources that were identified only focus on the impact sport participation or volunteering has on the employment opportunities of NEETs, overlooking the associated problems.

## INCREASED LEVELS OF PERCEIVED SELF-EFFICACY

**033, 184, 186, 199, 206, 226, 291, 349, 385, 424, 502, 504, 535, 538, 562, 633, 637, 651, 666, 680, 745, 792, 811, 820, 831**

Focusing on the connection between sport participation and physical activity and self-efficacy, some authors discuss it in the context of self-determined motivation[535, 538] or goal setting and commitment[538]. Links between self-efficacy and quality of life have also been explored in BUPA report into benefits of dance for older people[186].

In this report, self-efficacy is defined as **individuals' belief in their ability to accomplish a task autonomously,** suggesting a potential crossover with the subdomain on self-esteem reviewed in the chapter on mental wellbeing.

A growing body of literature[226, 186, 291,424, 502, 504, 199, 349, 385, 651, 666, 680, 745, 535, 538, 184, 633, 792, 811, 820] suggests that there is a positive association between physical activity/sport participation and increased levels of self-efficacy.

The evidence, however, is **not overwhelmingly positive**: one systematic review of 129 studies[033] noted that only a small number of reviewed interventions reported positive influence on students' self-concept (the review used self-concept as an umbrella term for self-esteem, emotional self-control, self-efficacy, self-perception, and self-competency). Skoro-Kondza et al (2009), using an exploratory randomised controlled trial of a yoga intervention with a sample of 59 adults with type 2 diabetes, also did not find any significant improvement in their self-efficacy[206].

Only one study explored the impact on self-efficacy for **sport volunteers**. Using the industry-wide benchmark, the New Philanthropy Capital's Emotional Wellbeing measure, the study[637] sent an online survey to 2,700 people to measure their emotional wellbeing. The results showed that, compared to non-volunteers, people who volunteer in sport reported having a higher sense of pride and a better-defined purpose in life. However, it is unclear if this is unique to sport volunteers or applies to volunteers in general.

### Impact across subgroups identified in reviewed sources

There was a range of evidence that was specific to particular subgroups, including vulnerable groups and those facing adverse circumstances.

**Elderly people:** BUPA research suggest that dance groups[186] **improved quality of life** for elderly people, some of whom suffered with Parkinson's and dementia whereas physical activity in general (evaluation of an intervention using both quantitative and qualitative measurements)[633] and pilates

14 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/356062/Review3_NEETs_health_inequalities.pdf

(a systematic review of 10 case studies, 6 of which used randomised control trials)[349] specifically enhanced their functional autonomy. A study of elderly women conducted in Germany using control-design[745], found that participation in physical activity **reduces dissatisfaction with old age**. Jensen and Lorish (1994)[680], analysing questionnaires from 305 clinics, also found that people suffering from rheumatoid arthritis, following physical activity intervention, reported having **more control over their condition**.

**Women:** interviews with participants in the Us Girls activity programme (a programme aimed at young women from disadvantaged communities) revealed that women enjoyed learning new skills and as a result felt more confident about trying new activities[831].

**Young children and adolescents:** for young children (aged 5–11), a rapid evidence review[820] reported that there is a moderately strong evidence to suggest association between sport participation and **increased self-efficacy**. The review also explored the impact on self-resilience, noting a positive impact for sport-engaged adolescents. However, the authors noted that the evidence from adolescent samples is of poor quality.

**Disaffected youth:** the positive impact on at-risk urban youth is discussed in the context of improved self-esteem[199, 424,] self-discipline[199] and overall greater willingness to try new challenges[504]. Contributing factors to the success of the explored programmes were the relationships between mentors and participants as well as between participants themselves, and the resultant development of "group work principles" such as inclusion and respect, mutual aid and activity-based learning[199]. A US study of the connection between social work with groups and sports for at-risk urban youth, also suggests that *"the popularity of team sports can be utilised to mitigate the stigma of participating in a social work intervention."* (Brown, Sherrod et al., 2011, p. 64)[199].

**People with intellectual disabilities:** based on interviews with 200 participants in the Unified Sports programme, a programme that brings together people with intellectual disabilities and people without to train and compete together, a study found that participants improved their interpersonal and communication skills, self-belief and self-esteem[811].

**Combat veterans:** a systematic review of 11 studies found evidence that sport participation can positively influence the self-image, determination and motivation of combat veterans, though the evidence for positive impacts on autonomy was limited[385].

**People with severe mental illness:** a critical review of 16 articles published between 1998–2009[184] showed that exercise interventions can empower individuals with severe mental illness. However, the mechanism through which this confidence improvement occurs is unclear. Faulkner and Sparkes, drawing on data from an ethnographic study of 3 individuals with schizophrenia (1999), suggest it is linked to improvements in control over the individual's body, while Shiner et al (2008), using interview data with successful participants of an intervention programme, suggest that it could be because of improved self-confidence. Links between exercise and outcomes for mental wellbeing are also covered in the previous chapter.

A SIRC scoping review of 28 golf studies[562] found that 13 of the studies reported increased self-efficacy among players but only in the context of golf playing, and did not explore if this was transferrable to other areas of life.

## OTHER INDIVIDUAL DEVELOPMENT OUTCOMES[045, 137, 210, 223, 266, 241, 271, 275, 276, 291, 340, 441, 502, 536, 542, 553, 629, 633, 637, 646, 792, 794, 812]

22 sources described additional outcomes around individual development, which can be broadly clustered into five groups:

- Increased willingness to volunteer.
- Reduction in anti-social behaviour.
- Development of soft skills.
- Empowerment.
- General wellbeing.

### Increased willingness to volunteer and the resultant benefits

Studies cited in LSE analysis of Understanding Society Data[271] (its selective literature review component) and a scoping review (59 sources)[045] reported a positive relationship between physical activity/sport participation and young people's willingness to volunteer[045, 271], which some[045] explained in terms of sport fostering increased levels of empathy with others.

Volunteering is associated with a range of personal benefits such as forming new friendships (research undertaken by Join In[637]) and acquiring new skills both organisational and social (rapid evidence review by the Institute for Volunteering Research) [812].

### Reduction in anti-social behaviour

There is **mixed evidence** on the role sport participation plays in reducing anti-social behaviour (as is also noted in the chapter on community development).

Some studies cited in large scale research reports found a **reduction in vandalism** in areas where sports interventions took place[276, 291, 646, 792]. Some highlighted the diversionary and rehabilitative role of sport[291, 646]. Another explanation is that the relationships developed during sport programmes help participants develop a sense of belonging and respect for their local area[276].

However, some studies suggest that these findings should be treated with caution, either because there is limited research at present (rapid assessment of literature and case study research of 10 projects)[275] or because long-term changes in behaviour were not always evidenced (Department for Innovation report, 2009)[276].

In contrast, a cohort study and cross-sectional study cited in large scale systematic review found that organised sport could **promote anti-social behaviour** among adolescents by intensifying competitiveness and individualism or through its links to increased alcohol consumption (Hartmann and Massoglia (2007) and Rutten et al (2007))[291]. The latter point has been the focus of several studies cited in a scoping literature review in North America[045] but the relationship remains unclear with evidence on both sides:

- On the one hand, findings from two longitudinal studies (Barber et al 2011 and Eccles et al 2003) suggest that there is a drinking culture in many sports, further advanced by the alcohol advertisement around big sporting events[045].
- On the other hand, several papers including a meta-analysis (Durlak et al., 2010) and a systematic review (Eime et al., 2013) find that sport participation is related to better self-control, a factor associated with reduced alcohol and drug use[045].

More research is required to understand this complex relationship.

## Development of soft skills

Some studies focus on the development of soft skills without necessarily linking them to other outcomes such as employment or education. Where such links have been made, these have been covered under the relevant subdomain above.

There is evidence from a number of sources ranging from meta-analysis and narrative analysis to case studies that sport participation can help **children and young people** (including those from disadvantaged backgrounds) develop skills such as integrity, self-control, the ability to work as part of a team, social responsibility, conflict resolution and leadership, as well as establishing a sense of community[210, 241, 535, 536, 542, 794].

Two UK-focused reviews[629, 794] also explored the implications for sport **volunteers**, citing similarly positive impact, but both with caveats – one noted that many of the volunteers tended to be of high socio-economic status[794] and the other expressed concerns over the quality of the reviewed sources[629].

Two studies focused on specific **subgroups**: one on cancer survivors and another on PE teachers:

- improvement was observed in social functions for **cancer survivors**. However, this was not confirmed when measured as follow-up scores (systematic review of 40 trials, 38 of which were RCTs)[340].
- following involvement in BUPA: Start to Move programme, teachers reported increased self-confidence in their skills and children demonstrated more positive attitudes towards PE classes[633] (measured via questionnaires, focus groups and one-to-one interviews). However, it is important to note that the programme was designed specifically to develop primary teachers' confidence in teaching 4 to 10-year-olds.

## Empowerment

In an evidence-based analysis produced for the Commonwealth Secretariat, Kay and Didfield (2013)[829] cite evidence about how sport activities can provide **social networks** for young people who are not involved in other networks (Holroyd et al. 2003), as well as promote empowerment among girls, women and people with disabilities (Jeanes 2010; Hayhurst et al. 2009).

## Negative outcomes

On balance the review did not find any significant negative association between physical activity and sport participation and educational outcomes. However, some sources noted that a small number of studies reported such a relationship[093, 322]. These are explored in further detail below.

A few studies link sport participation with **increased anti-social behaviour**. This is because of either sport's potential for promoting competitiveness, self-interest and aggressiveness[291, 502] or due to increased alcohol consumption associated with some sports[276, 291]. Related to the latter, studying the relationship between high school participation and deviance in the US, Hartmann and Massoglia (2007)[291] found that sport participation was linked to higher levels of drunk driving, speeding and angry/violent behaviour at work. However, it is important to note that, as mentioned earlier, the relationship between alcohol consumption and sport participation remains unclear.

Programmes working with at-risk urban youth reported higher instances of **youth violence**, if participants were referred to them by police, young offenders' institutions and schools[815]. Awareness of this could help organisers prepare better. Overall, however, the positive impacts outweighed the negative impacts.

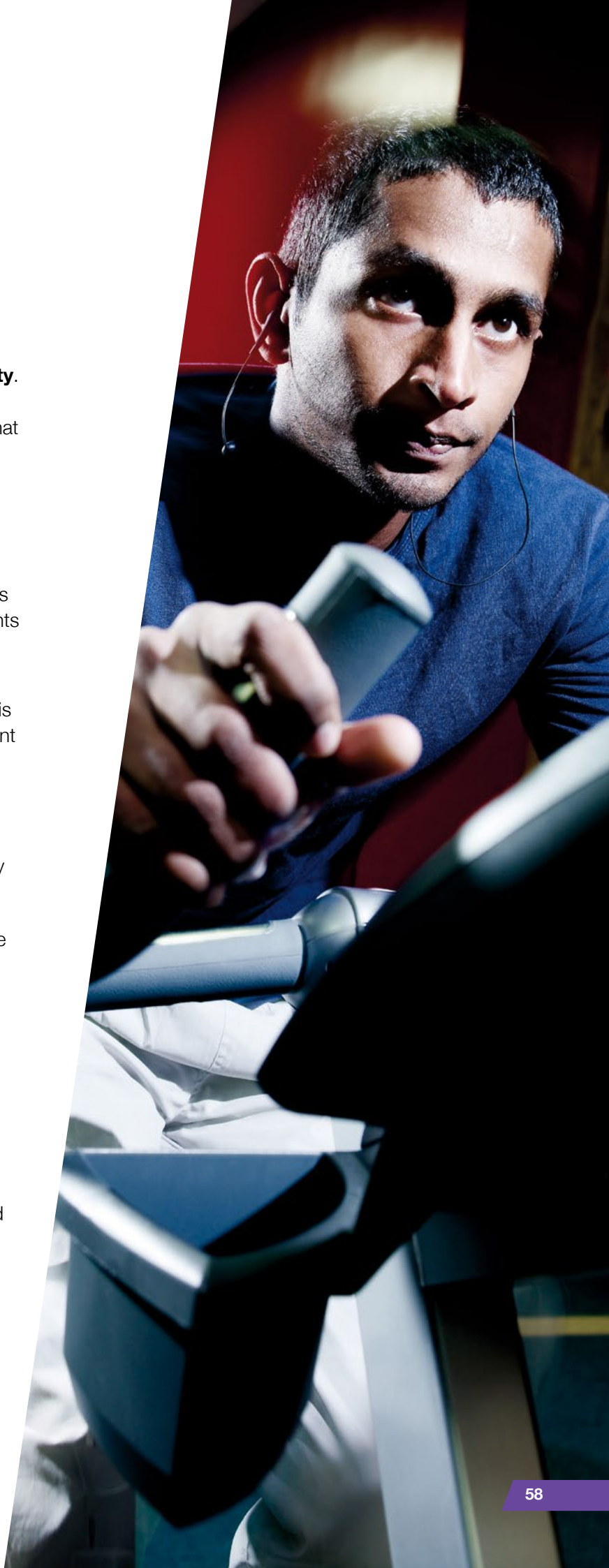
## CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS

A few common themes emerged from the literature on interventions that were successful in achieving individual development outcomes:

- Increased **amounts of physical activity**. A number of robust studies including longitudinal and control studies found that increasing the curricular time allocated to physical activity improves academic outcomes[794, 533].
- Several studies note that **integrating or coordinating physical activity in schools with other strategies** such as self-reflection led to greater improvements in academic outcomes than physical activity on its own[794, 646, 504, 241].
- One study, based on a matching analysis of three major surveys compared different types of sports and found that taking part in **team sports** correlates most with employability, whereas **outdoor activities** correlate most with income; although causality has not been robustly evidenced[643].

A small number of factors are linked with the **success of an intervention in general**, rather than found to be key to generating outcomes. These are as follows:

- Coaches and supervisors must be suitably qualified [538, 542, 504].
- Offer feedback on young people's progress to help maintain a sense of momentum[538, 542].
- Access to stable financial resources and stability of relationships where multiple agencies are delivering an intervention collaboratively[815].



Characteristics of successful interventions with particular subgroups are detailed in the table below:

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Improved academic performance** | Children | Better outcomes were shown when the classes were carried out by a trained class teacher rather than a PE specialist | 93 |
| **Improved academic performance** | Children | Longer exercise: girls who participated in exercise for 70–300 minutes demonstrated better academic results than girls participating in fewer than 35 minutes of exercise per week. This was not transferrable to boys | 533 |
| **Improved classroom behaviour** | Children | Physical activity during breaks from classroom work | 093 |
| **Improved school attendance** | Children | Fun, innovative and engaging activities that are integrated with other strategies targeting attendance and that engage the whole school in daily or weekly programmes | 794 |
| **Improved achievement tests, educational attainment and earnings** | Children | Football practice | 538 |
| **Improved young people's activity levels** | Children | Parental support, including involvement, encouragement and facilitation | 629 |
| **Improved school engagement** | Youth | While there is evidence that both single bout and regular activity contribute to better school engagement, some suggested that single bout have slight advantage as some studies have found that regular physical activity may reduce the time children spend doing their homework | 203 |
| **Improved school engagement** | Youth | Activities with moderate and vigorous intensity | 203 |
| **Improved school engagement** | Youth | Physical activity breaks during academic classroom lessons had the most positive impact on school engagement as it provided a shift in the routine and allowed students to refocus when they returned to the academic tasks. However, it is still unclear if the impact can be attributed to the break or to the physical activity | 203 |
| **Programme attendance rates** | Youth | Free and easy access is important but there is a risk using housing estates in disadvantaged areas as violence between local gangs could spill into violence during the programme | 815 |
| **Improved academic performance** | Youth | Greater amount of school time (e.g. an additional 45–60 minutes a day) for physical education leads to improved academic outcomes | 794 |
| **Improved maths performance** | Youth | Afternoon walks, no impact was recorded following morning walks | 794 |
| **Improved attention** | Youth | Morning running | 794 |

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Improved concentration and attention** | Youth | Coordinated exercise had stronger impact on concentration and attention than a normal sport lesson | 794 |
| **Personal growth** | Youth | Long-term programmes with opportunities for further development<br>Tailored programmes<br>Clear set of values<br>Use of rewards to build self-esteem<br>Sharing activity with peers with pro-social behaviour | 542 |
| **Reduced youth violence** | Youth | Programmes designed to act as diversion (focusing only on sport activities and designed to keep young people busy playing sports) reported a lower number of negative impacts than interventions designed to act as a hook (link young people into further non-sporting activities) | 815 |
| **Improved cognitive outcomes** | Youth | Activities with vigorous intensity | 332 |
| **Improved academic performance** | At-risk urban youth | Sport and Thought: offers combination between sport and reflective opportunities | 646 |
| **Positive impact on health, retention and progression to employment** | At-risk urban youth | Targeted projects in areas with little competing provision; work through partnerships and referral mechanisms | 646 |
| **Addressing of issues such as trauma, anger and aggression, social isolation** | At-risk urban youth | Sport interventions should include social work group practices when working with vulnerable young people | 199 |
| **Positive youth development** | Disaffected youth | To ensure maximum benefit, projects should enable the transfer of skills by offering reflective opportunities and follow-up experiences | 504 |
| **Improved mentoring relationship** | Disaffected youth | Suitably qualified coaches/supervisors | 504 |
| **Positive youth development** | Disadvantaged girls | To ensure maximum benefit, projects should help participants recognise the skills they have acquired | 241 |
| **Improved goal setting** | Disadvantaged girls | Girls achieved greater outcomes if they were in a peer-group with people of the same family background | 241 |
| **Improved school engagement** | University students | Lifestyle sports (such as unicycling) can be beneficial but the author caveated their finding noting that if such activities become mainstream, they are likely to lose their appeal | 502 |
| **Improved executive functions** | BME students, students from a low income background | 40 minutes of moderate to vigorous physical activity (MVPA) performed 5 days a week over a 15-week period showed better results than an intervention of 20 minutes of physical activity | 495 |
| **Improved maths and reading performance** | BME students, students from a low income background | Activities with moderate and vigorous intensity | 495 |

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Programme attendance rates** | NEETs | Recommendations:<br>Schedule sessions for the time that matches the preference of the participants. One of the interventions that targeted NEETs delivered its sessions mid-morning as opposed to early morning as participants did not have any other commitments and this worked well for them<br>Engage NEETs via open access provision<br>Use buildings as a base<br>Provide volunteer opportunities, sport-based qualifications and awards<br>Allow participants to drop in | 275 |
| **Improved employability** | Graduates | Participation in organised sport, no such link exists for gym attendance | 644 |
| **Therapeutic impact** | Combat veterans with PTSD syndrome | Outdoor activities had therapeutic impact and helped restore a sense of normality in veterans' lives | 385 |

## Gaps in the evidence base

As already discussed, a major limitation identified in the evidence base was the lack of large scale empirical studies that could confirm causality between sport participation and physical activity and outcomes related to individual development.

Most of the evidence is about sport participants with very little research reported on the impact on volunteers and spectators. Where studies have discussed the impact on non-participants, they tended to focus on the relative merits of volunteering in general rather than in the specific context of sport activities.

Other major limitations of the included reviews are that very few of them reported outcomes by subgroups or explored the influence of moderator variables such as gender, race, ethnicity and socio-economic background. This lack of specificity not only makes it difficult to establish a causal relationship between sport activities and outcomes, but also potentially fails to record valuable learning about what makes certain interventions successful. Moreover, there is a strong focus on children and young people with impact on individuals in the older age brackets often being overlooked.

# 4. SOCIAL AND COMMUNITY DEVELOPMENT OUTCOMES

The Sporting Future strategy describes this outcomes domain[15] *as "about helping to build stronger communities by bringing people together, often from different backgrounds, to make them feel better about where they live, improve community links and cohesion, and build social capital."*

A total of 47 sources in the final shortlist have evidence about community development outcomes.

**PRIMARY SOURCES**

4 case studies

1 case control study

1 randomised control trial

1 survey

**SECONDARY SOURCES**

21 narrative reviews

6 systematic reviews or meta-analyses

2 cross-sectional studies

2 rapid evidence reviews

1 guideline

1 economic impact assessments

1 expert opinion

1 case study

1 policy brief

**MIXED SOURCES**

2 narrative reviews and case studies

1 narrative review and interview

1 narrative review and economic evaluation

15 P.75

This chapter begins by focusing on some of the main social and community development benefits cited in the evidence, before moving on to evidence relating to specific subgroups:

- New migrant communities.
- Children and young people in educational settings.
- Older people.
- People with medical conditions.

The review then reports on a strand of evidence relating to the social and community development outcomes associated with volunteering.

## MEASUREMENT

Social and community outcomes cover a range of concepts that are not easy to define, and the evidence reviewed came from a wide range of different contexts and countries where definitions and measurement approaches varied.

The majority of outcomes reported in this chapter drew on **self-reported measures** involving questionnaires and qualitative methods such as focus group and interviews to capture data. While there are a range of validated measures for the concepts of social capital and community cohesion which can be used to collect data[16], few of the studies reviewed referred to them.

It is also noted that social and community outcomes are **closely related to psychological outcomes**, with differences in the terminology that is used across different papers[820].

Several studies noted that the common claims made about the community outcomes associated with sport and physical activity are **not always well evidenced**[210, 415, 538, 629] and measuring these sorts of outcomes may be neglected in evaluations, because they are difficult to identify and measure[542].

Research within the social and community development domain is also characterised by an **uncertainty about the direction of causality** between physical activity participation or volunteering and community development, and this requires further attention to develop robust approaches[291, 542 815 820].

It was suggested overall that there is a **lack of conclusive evidence** for the impact of different types of activity on social capital, and around the frequency, intensity and duration of activity that is required to lead to increased social capital[291].

## STRENGTHENING SOCIAL NETWORKS AND REDUCING ISOLATION

Several evidence sources identify that participating in sports and exercise offers opportunities for **social interaction** and for **widening and strengthening social networks** (Public Health England's Everybody Active, Every Day[192] and sportscotland's 2013 report on the social benefits of sport[792]). One example offered is of an intervention which helped to expand families' social networks by encouraging them to swim in pools outside their local area[792].

There is evidence that sport and physical activity interventions can help to **lessen social isolation**, from several high quality reports including Everybody Active Every Day[192], a systematic review by the Culture and Sport Evidence programme for the DCMS[291], and a study comparing health behaviours of sports fans and non sports fans in the US, using a case control design[630]. Further strong evidence was identified around the role of sport and physical activity in **building a sense of community and belonging** for those who may be socially excluded (again to be found in the Everybody Active Every Day report[192], as well as extensive research reviews for the Sport and Recreation Alliance[276], and for Nike[538], both of which draw on hundreds of pieces of published research).

16 For example: http://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/measuringnationalwellbeing/2015-01-29

One study, cited in secondary research on the impacts of non-mega sport events on local communities[819], suggests that parasport events (sport events for people with a disability) can help to support a greater **understanding of disability** in communities and can lead to a higher level of **citizen participation** in community life (Misener, 2013. The study examined leveraging positive outcomes from sport events in two past sporting events, then implemented and evaluated a leveraging strategy for an international youth sport event).

The sportscotland report cites evidence linking the increase in social networks and opportunities for social interaction, which are associated with participating in sport and physical activity, with **improved mental health** (Thomas,1995; Forrest and Kearns,1999)[792], (highlighting the interconnected nature of the positive outcomes of sport and physical activity).

## PROMOTING CIVIC ENGAGEMENT AND TRUST[276, 629, 657]

There is evidence that sports events may result in improved **community spirit** and a **sense of pride** as people participate, volunteer and spectate[276, 629, 657]. Research with members of sports clubs cited in a large scale review for the Sport and Recreation Alliance[276] found evidence that this group are *"more likely to be politically engaged, socially active and have trust in state institutions"* and demonstrate higher levels of **social capital**. The study, by Delaney and Keaney (2005) used European data to examine the relationship between sports club membership in the UK and social capital).

However, the authors of this study and several others cited in the review noted that causality could not be clearly established (for example, whether sports club membership made individuals more trusting, or a higher level of trust made people more inclined to join a sports club)[276].

## BRINGING PEOPLE TOGETHER FROM DIVERSE BACKGROUNDS[226, 276, 291, 415, 629, 657, 814]

A range of studies present evidence that participation in sport has the potential to bring people from diverse backgrounds together, for example, people of different ethnicities, socio economic groups, homeless people and people with disabilities[226, 276, 291, 415, 629, 657, 814]. In the literature on social capital, this is often referred to as 'bridging capital'. As stated in a European Commission White Paper (2009), because sporting rules are not based on belief systems, participation is open to all and sport can therefore create links between different groups of people[276].

### Ethnic minority communities

The systematic review for the Culture and Sport Evidence programme (2015) examines several studies on **ethnic integration** through sporting interventions and concludes that the available evidence overall supports the claim that sport **promotes bonding**[291]. Similar findings are noted in a study using literature review and primary research to explore intercommunity sport events in Sri Lanka, which reports that bringing people from different backgrounds together can help to build social networks, enhance skills and empower communities[657].

The bridging capital benefits of sport and physical activity are acknowledged in the sport for development sector. The use of sporting activities to support social and community development in **divided societies** is explored in the Sri Lanka study, in which the authors seek to explain the relationship by suggesting that *"sport activities can contribute to people regaining a step-by-step sense of security and confidence when approaching new people, groups, and even politically opposed communities."* (Schulenkorf et al, 2012, p380)[657].

A guide to advancing development through sport, produced by the Commonwealth Secretariat for Commonwealth countries, also identifies the potential of sport to act as a platform for **promoting peace, stability, and democratic environments** (not only between people of different ethnicities but people divided in any way). It suggests that sport may do this by providing an **alternative space for dialogue**, and generating **social ties** and **shared identity**. This evidence draws on two research studies using pre and post test impact assessment: one on communities participating in the Australia Africa Sport Development Programme's Active Community Clubs Initiative (Burnett 2006), and the other on basketball players from Europe, Jordan, Palestine and Jewish and Arab players from Israel participating in the Friendship Games (Rookwood 2008)[829].

### Socio economic groups

The Sport and Recreation Alliance emphasises the importance of social interactions at sports clubs, since people tend to live in environments surrounded by people of similar economic status, and interaction at work is structured by the employment context[276]. Sports clubs therefore offer an opportunity for people of **different employment backgrounds** to encounter each other socially.

### Homeless people

A study of spectator attitudes at the Homeless World Cup reported that 90% of the 129 spectator sample (not representative) agreed that the event refutes stereotypes about **homeless people** (O'May, 2011)[276]. This suggests that bridging between diverse groups of people can take place across the participant/spectator divide.

## NEW MIGRANT COMMUNITIES
**226, 291, 415, 814, 832**

Migrants commonly go through a process of adapting to the differences they find in their host country compared to their own culture, which is referred to as 'acculturation'. A systematic literature review, using predominantly US sources, finds that **greater acculturation** among culturally and linguistically diverse migrant populations is associated with increased participation in physical activity[226]. It also finds that higher levels of participation are associated with those who have spent a longer time in the new country.

### Benefits of getting involved with sport for new migrants

The most detailed exploration of sport in the context of migration identified in this review comes from the Institute for Canadian Citizenship, which conducted a case control study involving 4,000 participants on the role of sports in helping new Canadians feel at home[814]. Over half of those surveyed said that integrating into Canada was an important or very important factor in their decision to play sports:

*"…sports seem to be recognized by new citizens as an integrator. It is not necessarily the primary reason new citizens choose to play or watch sports when they come to Canada. However, integration is often the result."* (Institute for Canadian Citizenship, 2014, p.36).

The study found that sport offered opportunities in terms of integration to new citizens, including:

- **Learning about national culture:** the vast majority of respondents (95%) identified sport as an important part of Canadian culture, with over two thirds (69%) saying that sport helped them learn about national culture in the first three years of their arrival.
- **Interacting with others in a relaxed environment:** respondents felt that sport provides a more casual environment for interacting with others than workplaces do, allowing for the formation of friendships and the transmission of aspects of local culture that cannot be learned through books or online, such as local slang, behaviour or sense of humour, or even means of handling conflict[814].
- **Identifying with their new community or country:** new citizens talked about the value of attending sporting events*: "When you're at the game and the Flames score, whoever's sitting next to you is going to give you a high five…it doesn't matter what you look like or how much money you make." (p. 38).* Major sporting events are described as *"pivotal moments for new citizens in their identification with their community or country."* (p. 38).

The same study presented evidence that for those who do not participate in sport themselves, **watching their children** play sport or **volunteering** for their children's teams led to an increased sense of community[814]. Some of the same benefits as participation are experienced by these parents in terms of opportunities to:

- Speak the local language.
- Pick up local knowledge.
- Make new friends.

A systematic review by Amara et al (2005) included case studies in three UK locations where sport projects aimed to promote the **social inclusion of asylum seekers and refugees**. Although there is variation in the robustness of the case studies, there was evidence that the projects encouraged socialising through sport and thereby promoted a shared identity between refugees from different ethnic backgrounds, as well as fostering social integration and community cohesion between refugees and players from more established local communities: *"Competitive sport was seen as a quick way into what asylum seekers perceive as mainstream British culture and allowed the new arrivals to be seen as trying to integrate and follow rules."* (p.55)[832]

## Limitations to the benefits of getting involved with sport for new migrants

The Institute for Canadian Citizenship research noted that some respondents distinguished between integrating into local *culture* and **integrating into life locally**, which refers to the way new citizens can establish a life in their new country without acculturation[814]. To achieve the former type of integration, and therefore gain bridging capital, they felt that it was essential to play sports with a diverse group of participants. However, this is challenging since new arrivals may gravitate towards teams with people from their own backgrounds.

These findings are consistent with a study of the role of sport in new migrant communities which, based on qualitative research with 22 migrants in the Leeds area, finds that the **potential for sport to build a sense of belonging is often not realised**[415]. The authors note that sport has been credited as a source of bridging and bonding capital by policy makers and others, but they criticise the claim that migrant communities simply need to do sport in order to achieve social inclusion. However, they found that individuals often participate in sports alone, or with

others from their own community, with the result that they do not build bridging capital. The authors conclude that despite the potential for sport to support inclusion, it is *"more likely to reaffirm otherness and elitist distinction."* (p. 126)[415].

The Culture and Sport Evidence programme's systematic review similarly notes that while sport can bring people together and overcome social barriers, *"evidence of more longstanding or fundamental change in terms of social inclusion and community cohesion is generally weaker"* particularly when it comes to ethnicity. (p. 52)[291].

## CHILDREN AND YOUNG PEOPLE IN EDUCATIONAL SETTINGS[504, 521, 820]

Some of the evidence around community development outcomes was specific to educational settings, namely schools and higher education settings.

### In schools

A four-year evaluation of an outdoor physical activity programme in five London schools, which analysed impact data on 600 pupils, found that many of the skills and outcomes identified by pupils were about an improved ability to **build relationships** and connections and levels of **trust**[504].

Similarly, a rapid evidence review by Public Health England on the effects of physical activity participation among children aged 5–11, reports evidence of common social outcomes including positive relationships and **social and communication skills**, though it was noted that direct causality between physical activity and these outcomes has not been established[820].

### In higher education

In educational settings for young adults, a narrative review drawing largely on studies on north American college settings found that small communities on campuses, such as clubs or teams, encourage social integration[521]. The review cited evidence that students who developed **informal support groups** through sports participation were more likely to seek advice from their peers and university staff (Belch, 2001), and that **recreation spaces** on campus functioned as a space for community. The review cites several studies linking belonging to a campus athletic facility and reported feelings of social belonging.

Analysis of the NIRSA/Student Voice Campus Recreation Impact Study Survey (completed by over 33,000 students in 38 US colleges and universities) shows that most facility users (96%) agreed that campus recreation facilities and programmes (including but not limited to sports facilities and programmes) led to improved **quality of life** for students (Henchy, 2011)[521].

## OLDER PEOPLE[186, 562]

Several studies identify benefits for older people, which span individual, social and community domains:

- A literature review by the Sport Industry Research Centre (SIRC), exploring outcomes associated with golf, found that alongside female players, older people were particularly likely to experience **feelings of community**, self-worth and a sense of belonging[562].
- A review of international research by healthcare provider BUPA, on the benefits of dance for older people, found that participants tended to emphasise the **social benefits** of the activity alongside references to physical and mental outcomes. Older dancers participating in a qualitative study of social dancing and social inclusion in three cities found dancing fun and enjoyed taking part (Skinner 2009)[186].

## PEOPLE WITH MEDICAL CONDITIONS[291, 680]

Interventions involving people who have specific conditions can also support positive community outcomes:

- A narrative review on the benefits of physical activity for people with **rheumatoid arthritis** (RA) cites a study involving 16 interviews with RA patients, which found evidence of social benefits for the group in terms of their sense of belonging (Loeppenthin et al, 2014)[680]. This highlights the importance of measuring social and community development outcomes even when carrying out specific health interventions, in order to gain a more holistic understanding of the broader benefits.
- Sport offers opportunities for social interaction and integration of young people, including those with **attention deficit hyperactivity disorder**, into social settings (Lullo and Van Puymbroeck, 2006) (cited in the systematic literature review conducted for the Culture and Sport Evidence programme)[291].

## VOLUNTEERING AND SOCIAL AND COMMUNITY DEVELOPMENT OUTCOMES[276, 291, 629, 794, 810, 818, 819]

There was some evidence around the role of sports volunteers and community outcomes, some of which overlaps with outcomes for volunteers on an individual level (covered in the previous chapter). As described in a review by the Sport and Recreation Alliance, volunteers in sports clubs make links with other volunteers as well as the participants they support; volunteering can create and support **new networks** and build **trusting relationships**[276].

The review cites an evaluation of the UK Step into Sport volunteer training programme for 14–19 year olds, which found that higher levels of volunteering (100 hours or more) gave rise to greater benefits, and around half of programme participants reported a greater sense of **altruism** and increased **citizenship** (Kay and Bradbury, 2009)[276]. A literature review by Loughborough University's Institute of Youth Sport includes the example of the Millennium Volunteers initiative to encourage citizenship, which used sport and volunteering to encourage **pro-social behaviour**. Based on a sample of 306 young sport leaders, they identified positive impacts in terms of increased leadership skills and motivations to volunteer (Eley et al 2001)[794].

A UK study, a scoping review of the evidence on volunteer sports coaches and community engagement for the Arts and Humanities Research Council's (AHRC) Connected Communities programme, using a systematic methodology, found that volunteer youth coaches felt that their experiences contributed to the development of their **human capital**, such as self-esteem[629]. However it should be noted that the review authors conclude that the evidence on volunteer sports coaches is "*fragmented and limited*" and "*lacks robustness and rigour*"[629].

### The influence of scale

There was some evidence that **smaller scale volunteering or events** can foster stronger community links and tighter social networks than larger scale ones[819, 818] (based on two studies published in the peer-reviewed journal, European Sport Management Quarterly). This may be because:

- On a smaller scale, volunteers may be more likely to **bond with others**, which strengthens their sense of community and common interest[818] (finding from a primary research study to measure sense of community among small scale sport event volunteers, sample size of 253 volunteers)

- Smaller events are more likely to **embrace local core values** than mega events, and allow for greater reciprocity, as **local input** into programme design can help to generate outcomes that will best serve that community[819] (finding from a narrative review).

However, the author of the latter suggests caution around these findings, noting that *"accurate social impact assessments of events are missing, and measuring these impacts is extremely complex."* (Taks et al., 2015: p. 3)[819].

### Association between adult/parental and child engagement in sport

Adult community involvement is positively associated with participation in youth sport, for example in the systematic review by the Culture and Sport Evidence programme[291]. Young people whose parents volunteer or participate in sport are more likely to do so themselves, according to analyses of the Family Survey of the Dutch Population 2000, which reveal significant relations between current volunteering and parental volunteering in the past (Bekkers 2007[810]).

A 34-study review of parental correlates of child physical activity found significant correlations between parental ***support*** for physical activity and child physical activity level; however, results for an association between parental and child physical activity levels were mixed (Gustafson & Rhodes, 2006)[629].

These findings may suggest a cycle of engagement with sport across generations, where participation, volunteering and parental support will give rise to improved outcomes in the future.

## NEGATIVE OUTCOMES[210, 291, 415, 657]

### Anti-social behaviour

One literature review identifies that sporting events can be associated with negative community outcomes *in terms of anti-social behaviour*[657]. Evidence is presented in the review linking the **competition and rivalry** at sport events with behaviour such as **hooliganism** and **vandalism**, and notes that forms of solidarity, group identities and behaviours associated with sporting events have the potential for social bonding capital to have negative outcomes. Despite this, the authors report that: *"…sport event researchers are largely optimistic that strategic event planning can prevent or limit the occurrence of negative social impacts, while maximizing event benefits."*[657]

The authors of a 2016 meta-analysis of 57 studies concluded that there is no relation between participation in sport and **juvenile delinquency**, though in some instances participation was associated with higher levels of delinquency (it was not made clear why this was the case)[210]. The authors concluded that more research is needed to understand the effect of interventions designed to reduce delinquency.

### Social exclusion

A number of sources identified potential negative outcomes for social and community development in terms of social exclusion, including two studies cited in the Sport and Recreation Alliance's review[291]. One found that sports clubs, such as golf clubs, can **reinforce exclusion** (Tonts, 2005). Another concluded that adopting an 'open access' approach will not in itself overcome barriers to inclusion; instead more **resources** are needed (Waring and Mason, 2010)[291].

The Leeds-based study exploring the participation of new migrants in leisure time sporting activities (based on 22 qualitative interviews with new migrants from Poland and sub Saharan African countries) also identified barriers to successful social inclusion outcomes; these were (again) insufficient resources, alongside the **fear of prejudice**[415].

A meta-analysis on the impacts of physical activity interventions on psychosocial outcomes in adolescents identified possible negative effects on social inclusion resulting from the competitive component of sport serving to emphasise social **inequalities** between participants; but the study finds a lack of empirical evidence to support these concerns[210].

Attempts to promote social inclusion through sport may also be hampered by the possibility that programmes are **dominated by well-established members** at the expense of new members. Additionally, there is a risk that delivery will focus on certain sport-related outcomes rather than community development outcomes, or that the programme can be misinterpreted negatively, *"as a means of social control"*, rather than a means of community development (p.51)[291].

### Mitigation of potential negative outcomes

Effective lines of **communication** can be important in supporting the community outcomes that can result from sport interventions[424]. Drawing on a qualitative study of a UK government funded sport-based social inclusion programme for young people (Positive Futures), involving 88 interviews with participants and staff, the author finds that the relationships formed through sport-based interventions can support communication in a way that reduces criminalisation, for example through programme staff contacting police or community support officers to share useful intelligence and take preventative actions[424].

However, she notes that the creation of these communication channels could also increase criminalisation, as offences that could previously have been dealt with informally may now be handled by the criminal justice system[424].

## CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS

As the types of interventions and outcomes reviewed for this domain were quite disparate, only a few common themes emerged from the literature that characterise successful interventions. These characteristics were not the main focus of the research reviewed and methodologies were generally not designed to test out the impact of different characteristics specifically, so the below should be taken as descriptive features of interventions rather than robustly evaluated characteristics of successful interventions.

- Most frequently noted across different sources was the importance of the **skills and attitudes of those delivering interventions** (staff or volunteers)[542, 564 538 810 811, 812, 826].
- **Combining** sport and physical activity with other forms of interventions such as those focusing on developing skills, fostering community links, or volunteering[646, 657, 794].
- Related to the above point, a **multi-agency approach** is a feature of interventions described in a number of studies, linking the delivery organisation with other partners such as sports clubs, community groups and networks, police, health providers, local authorities, criminal justice bodies and others[542, 646, 815, 819]. Some authors note that it is important to locate interventions in community settings, involving the community, rather than in institutional ones[542, 657, 812].

- Interventions should be **inclusive and accessible**[538, 805] (for example located in local spaces, such as schools, in places that are safe, in facilities that are open, as opposed to locked, in built environments that can be accessed by people with mobility needs such as wheelchairs and catering to different interests and levels of ability[538]).

The table below describes further detail on interventions with particular target groups:

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Social inclusion** | Children and young people | Culturally and contextually relevant physical activity opportunities | 535 |
| **Social inclusion** | Children and young people | Equal access to opportunities to participate | 535 |
| **Social inclusion** | Children and young people | Whole school approaches and 'conducive environment' – no further detail given in source | 535 |
| **Improved social outcomes** | Volunteers and younger sport participants | Progression of participants into volunteer roles | 810 |
| **Improved social outcomes** | Volunteers | Small scale events | 818, 819 |
| **Improved social outcomes** | Community members | Appropriate physical environment and infrastructure | 192, 238, 358, 792 |
| **Bringing together communities** | Community members | Development of a celebratory element in sporting interventions | 199 |
| **Improved social outcomes such as social networks** | Sport participants | Training for those who carry out the interventions to create relationships to transfer skills to participants | 504, 629 |
| **Development of sense of community** | Members of sport clubs | Having a common interest in more than sport itself | 505 |
| **Development of sense of community** | Members of sport clubs | Provision of leadership opportunities, opportunity for participants to take on responsibility | 505 |
| **Development of sense of community** | Members of sport clubs | Voluntary nature of activity linked to individual autonomy | 505 |
| **Development of sense of community** | Members of sport clubs | Internal and external competition | 505 |
| **Development of sense of community** | Members of sport clubs | Focus on goals and mastering of skills | 505 |

| Outcomes | Target group | Characteristics of successful intervention | Source ID no(s) |
|---|---|---|---|
| **Improved social outcomes** | Members of sport clubs | Integration of members into social aspects of club to develop identification with it | 810 |
| **Development of sense of community** | Members of community sports clubs | Limiting the marketisation of voluntary sport organisations | 629 |
| **Development of sense of community** | Members of community sports clubs | High level of parental support, or parent-coaching | 629 |
| **Improved intercommunity relations** | Members of different ethnic communities | Follow-up events and activities | 657 |
| **Improved intercommunity relations** | Members of different ethnic communities | Focus on young people as catalyst of change; they are easier to influence, having fewer prejudices | 657 |
| **Improved intercommunity relations** | Members of different ethnic communities | Mixture of large scale and smaller scale events | 657 |
| **Improved intercommunity relations** | Members of different ethnic communities | Use momentum of sports events to contribute to lasting development outcomes for the wider community | 657 |
| **Improved intercommunity relations** | Members of different ethnic communities | Planned cultural performances alongside sporting events | 657 |
| **Improved intercommunity relations** | Members of different ethnic communities | Integrated teams | 657 |
| **Improved intercommunity relations** | Members of different ethnic communities | Community planning of events and political involvement | 657 |
| **Social inclusion** | Migrants | Online information hub on sports, distribution of information, recruiting of new citizen ambassadors, discounted tickets for sport events | 814 |

## GAPS IN THE EVIDENCE BASE

A report by Nike on the evidence base for the benefits of physical activity[538] illustrates the general agreement among authors that the **evidence base for the link between sport and physical activity and social and community outcomes could be improved** (as described in relation to outcomes measurement at the beginning of this chapter).

- The Nike report characterises most of the social capital evidence as **orange**, meaning that there are reasons to believe there is a link but that there is a lack of conclusive evidence. Evidence marked as orange includes outcomes such as bridging differences of race/gender/ability, improving community cohesion and reducing crime.
- Outcomes around social inclusion and the development of social networks are marked **yellow**, signifying higher quality evidence.
- The only outcome marked **green**, meaning solid evidence, is an improvement in "social norms", defined as norms held in the community (household, local, school or work environment) that promote physical activity[538].

A lack of systematic research into effective interventions means that **few programmes can clearly identify positive social and community impacts** which are demonstrably causally linked to physical activity, as noted in a literature review by Loughborough University's Institute of Youth Sport[794].

The lack of research focus on community outcomes is corroborated by a Comic Relief review mapping the research on the impacts of sport and development interventions from 2005–11, whose author notes that:

*"There was little mention of a research gap in the area beyond the individual 'level of analysis', i.e. groups, communities, societies. For example, though many programmes have ambitions to create impact at community and societal levels, few examples were seen of research that actually tries to address this using appropriate methods, e.g. social network mapping."* (p.17)[828]

A meta-analytic review looking at the effects of physical activity interventions on adolescent psychosocial outcomes finds that a common rationale for sporting interventions is the effect that such interventions may have on social inclusion and community participation, but again highlights that there is **little empirical evidence to support assumptions** made about the effects of sporting interventions on social inclusion[210].

While the evidence suggests that sport can facilitate social connections between participants and wider society, few studies have examined **how such outcomes can be brought about by volunteers**, according to the scoping review on the role of volunteer sports coaches as community assets conducted for the AHRC's Connected Communities programme[629]. Clearly the gap is twofold: evidence ***for*** outcomes, and evidence ***explaining*** outcomes.

The author of the large scale review on the outcomes of sport by the Sport and Recreation Alliance identifies a gap in the evidence around **social inclusion outcomes for people with disabilities**[276]. The review cites evidence based on empirical data examining the role of leisure in the lives of a group of young people with cerebral palsy, which claims that the role of leisure time activities in challenging social exclusion largely remains a political ambition rather than a reality (Aitchison 2003), and the review author concludes that: *"…there is a huge research void around the relationship between sport and recreation and tackling disability exclusion."* (p.148)[276].

Another avenue for potential future research may be to increase our understanding of **how to mitigate negative outcomes for communities around anti-social behaviour** associated with sporting events.

# 5. ECONOMIC DEVELOPMENT OUTCOMES

The economic value of sport has often been looked at separately to the other public benefits that sport can deliver[17]. However, in the new strategy the recognition and measurement of the **economic impact of sport**, how it creates jobs, promotes growth and drives exports, is now considered to be **fundamental**. The strategy therefore encourages organisations to think about not only how they contribute to the nation's health or wellbeing, but also to the economy, both nationally and locally.

It is impossible to ignore the **growing body of evidence that is using various methods to put an economic value** on the impact sport and physical activity has on its wider societal benefits. This is largely in response to the need to identify a return on investment at a time when public funding is at its most stretched: agencies are increasingly keen to put a 'value' on outcomes and monetise what they get out of the resources that they invest.

The literature identified as part of this review discussed the economic development outcome in these two broad yet distinct ways. Firstly, as **sport as a sector/industry**, and what it contributes to the national economy both in the UK and further afield. This was particularly in relation to the industry's contribution to consumer spending, Gross Value Added (GVA) and the creation of jobs and employment. Sources identified also included studies on sport tourism, the economic development derived from small events, and the economic value of volunteering.

The second major area was the use of various methods to **assign economic value to the societal benefits of sport participation**, particularly in relation to improved health, crime reduction, educational attainment and employability, and community involvement (all of which have been discussed in previous sections of this report). Increasingly organisations and researchers are using various econometric modelling methods to quantify and put a value on the benefits of sport (although the evidence for those benefits themselves still varies in robustness) with a view of highlighting its potential for generating savings to the public purse, and therefore encouraging investment.

A total of 43 sources were reviewed. As explained earlier in the report the decision was taken to exclude items that related only to large, 'mega' events (such as the Olympics and major league sports).

Where a specific location for the research was given it was primarily UK-based with a small number originating in Europe, the United States or Canada.

Sources were most frequently based on secondary research or mixed methodologies, with a number of these using some form of economic evaluation/econometric modelling (as shown on the following page).

17 Sporting Future p.76

**PRIMARY SOURCES**

1 case study

1 economic evaluation

1 survey

**SECONDARY SOURCES**

12 narrative reviews

9 economic impact assessments

4 cohort studies

3 systematic reviews or meta-analyses

3 cross-sectional studies

1 set of guidelines

1 policy brief

**MIXED SOURCES**

4 narrative reviews and case studies

2 narrative reviews and surveys

1 narrative review and economic evaluation

# MEASUREMENT

This section considers how the literature measures the impact of sport, both in relation to its economic value to the UK economy, and the various methodologies used to assign a 'value' to outcomes as a result of participation in sport.

## Sport as a sector/industry

When demonstrating the value of sport to the national and local economy the figures in the literature are largely calculated and presented in terms of the following economic impact indicators: **consumer spending, gross value added (GVA), and employment**[751 ,661 ,660, 662, 004, 562, 819, 821].

## Background/context

Over the last decade there have been increasing demands on the European Commission by policy makers, experts and sports stakeholders to provide more reliable and comparable data in order to demonstrate the macroeconomic importance and potential of sport to contribute to wider policy goals.

Introducing the most recent official statistics from DCMS on the value of the sport sector economy in the UK, Kokolakis outlines how the current approach to measurement came about from the European Commission's 2007 White Paper on Sport. Following this the former Working Group Sport and Economics developed the "Vilnius Definition of Sport", as the basis for the collection and production of data at national level[821].

This builds on a technique called the '**Satellite Account' technique** which was developed measure the size of economic sectors that are not defined as industries in the traditional system of National Accounts, because they do not correspond to a specific statistically delineated economic activity. The approach is an extension of the system of **National Accounts.** Industries are classified via the Classification of Economic Activities in the European Community (NACE[18]) while goods and services are defined through the Classification of Products by Activity (CPA) framework. Developing estimates for the sports sector requires separating out sport and non-sport components[821]. Six EU Member States (Austria, Cyprus, Germany, Netherlands, Poland and UK) and Switzerland have produced national Sport Satellite Accounts (SSAs) which demonstrate the structure and importance of sport in the national economy[824].

### Definition of impact indicators

As mentioned above, most UK- and European -based studies on the economic value or importance of sport use one or more of the following three economic impact indicators:

- **Consumer spending/expenditure:** relates directly to households, and may have a direct element – e.g. spending on bicycles and an indirect element e.g. accommodation expenditure during an outdoor recreation holiday.
- Generated **Gross Value Added (GVA):** the GVA is the most comprehensive and useful statistic of economic value as it corresponds directly to the GVA in the economy as a whole. It shows the contribution of sport to the economy. GVA is measured as the sum of wages and profit surplus in the sport sector.
- **Employment:** as a result of interactions between consumer, commercial, public, and voluntary sectors. Like consumer spending it may have a direct element – e.g. associated employment with buying a bicycle, and an indirect element – e.g. employment in the accommodation used during an outdoor recreation holiday.

The use of these indicators ensures compatibility with the international standard of economic impact research. SIRC, in their Satellite Account for Golf, note that **turnover** is a fourth, less commonly used, measure[825].

### The statistical definition of sport[821]

The Department for Culture, Media and Sport's Sport Satellite Account 2011 and 2012 (2015)[821] outlines the statistical definition of sport used to measure sport-related activities. The EU have an **agreed definition of the sport ('Vilnius Definition')** which sets out which categories or subcategories are fully or partly related to sports and the definition to which they belong. Sport under the Vilnius Definition is comprised of three parts:

- **Statistical Definition:** Comprised of "sporting activities" (the only part of the sport sector having its own NACE category).
- **Narrow Definition:** All activities which are inputs to sport (i.e. all goods and services which are necessary for doing sport) plus the Statistical Definition.
- **Broad Definition:** All activities which require sport as an input (i.e. all goods and services which are related to a sport activity but without being necessary for doing sport e.g. insurance or gambling) plus the Narrow Definition.

18 Nomenclature statistique des activités économiques dans la Communauté européenne

The **strength** of the SSA methodology as employed in the main UK SSA is that it is built on **data sourced in three different ways**, increasing the robustness of the final statistics produced. However, the author does note that the methodology could be improved by including analysis of international trade in sport goods and services, where identifying sport services trade is currently particularly challenging[821].

Another study, using the Satellite Account methodology for golf, emphasises that this approach is **transparent, replicable, and reconcilable** with the UK's National Accounts, and avoids double counting. The authors do not note limitations to their approach[825], which is also the case for the assessment of the economic impact of the outdoor economy, which uses a related methodology[824].

### Economic impact of smaller sporting events

One review of a small number of papers[819] contrasts two approaches for measuring the economic impact of (smaller/local) sport events. However, the authors do not discuss whether any other measurement approaches from major events[19] are transferable to smaller events. The approaches are:

- **Economic impact analysis (EIA)**, which takes into account new and additional money coming into the city/region. Likely to find positive outcomes for mega and non-mega sport events
- **Cost benefit analysis (CBA)**. This estimates net benefits for host communities, taking into account resources needed and available to stage the event. Likely to show more positive/less negative economic outcomes for smaller scale events than mega sport events. The authors suggest using this method.

### Valuing the social outcomes of sport

For assigning a valuation to the social benefits of engaging in sport[20], the sources reviewed used a number of different techniques, which are detailed in the table below:

19 Sporting Future describes mega or major events as: "the list of mega events is short, but includes the biggest and most popular global sporting events, such as the Olympic and Paralympic Games, the FIFA World Cup and the Ryder Cup."

20 And culture in some instances

| Research | Methodology used | Data Sources |
|---|---|---|
| Social return on investment in sport[564] | **Evaluative Social Return on Investment (SROI)** that followed 6 stages:<br>Identify key stakeholders<br>Map outcomes<br>Measure and value outcomes<br>Establish impact<br>Calculate SROI<br>Report<br>They used an ***annual*** estimate for calculating national level outcomes and values of social benefits from sport: i.e. comparison of a year's input with the value of the social benefits (minus social costs) generated by a year's participation in sport.<br>The SROI value was calculated by dividing the value of outcomes (£44.75 billion) by the value of inputs (£23.46 billion). Which gave a SROI of 1.91. i.e. for every £1 invested in sport in 2013/14, £1.91 worth of overall social impact is generated.<br>Authors note that only domains where the impact of sport or physical activity is robustly evidenced have been included, limiting the scope of the findings and potentially underestimating the true social value of sport and physical activity. The methodology also relies on a number of other assumptions (p.5) | Outcomes were identified through a systematic review of literature and consulting academic experts in the field of health, crime, education and social capital<br>Outcomes were valued through literature, secondary data and financial proxies, sometimes with the help of assumptions. |
| Understanding the value of engagement in culture and sport[808] | The paper is concerned with the value of a person participating in sport or attending/visiting a cultural asset. It notes that conventional economic valuation techniques (e.g. stated preference, revealed preference) faced methodological challenges; as a result, the report explores the possibility of employing **subjective wellbeing (SWB) techniques** and **decision modelling** to value engagement in culture and sport.<br>The paper notes that the innovative nature of these methods mean that further methodological development is necessary, as well as inviting further research to understand how the SWB method can be used to inform policy making. | The British Household Panel Survey (BHPS) is the main source of data for wellbeing studies in the UK. |
| Quantifying and valuing the wellbeing impacts of culture and sport[809] | **Wellbeing Valuation (WV) Approach**<br>The WV approach uses measures of subjective wellbeing (SWB), from large national datasets. It is assumed that SWB represents a good proxy for an individual's welfare (or underlying 'utility' in the language of economics). Authors suggest this is more robust than estimations of willingness to pay/stated preference approaches.<br>Report provides a very detailed methodology from page 11.<br>Authors note that it is difficult to infer causality for effects on SWB from data available, and although they have controlled for a number of confounding variables, their findings remain limited by the insufficiently established causal link. | Uses 2 UK datasets:<br>Data on arts and sport engagement come from Wave 2 of ***Understanding Society*** (2010–2011), which is a nationally representative sample of 40,000 households conducted annually in a panel format.<br>British Household Panel Survey |

| Research | Methodology used | Data Sources |
|---|---|---|
| Quantifying the social impacts of culture and sport[271] | Economic Appraisal, including **Cost Benefit Analysis.**<br><br>They use Wave 2 of Understanding Society (see above ref[809]) and run a number of regression models to look at the impacts of engagement and participation on each of the four domains: health, education, economy and civic participation.<br><br>***Limitations:*** it was out of the scope of the paper to estimate the cost savings directly using the relevant data. They therefore provide indicative cost savings based on readily available data to demonstrate how the impact estimates in the analysis *could* be used in appraising policy. | Literature review<br><br>Understanding Society Survey |
| Economic value of crime reduction as a result of engagement in sport[646] | **Cost Benefit Analysis – using** measurements of Quality Adjusted Life Years, or QALYS (valued at £20,000 per additional QALY gained). The research draws on validated research methodologies from outside of the sport sector, including from economic impact assessment, health research and literature on youth crime. Also draws on the research project, Teenage Kicks (2011), which placed a value on the return on investment offered by sport projects through comparing existing data relating to the outcomes of sport with national cost benchmarks.<br><br>Authors claim that the research methodology is capable of providing a more robust assessment of the impact of sport on crime and related positive outcomes; and that this methodology is easily transferable and replicable across sport projects (p.31); however, the study lacks methodological detail to assess its robustness and the quality of the results. | Teenage Kicks report<br><br>Primary research from four 'Sport for Good' projects in the UK, Italy and Germany. |
| Value of volunteering[637] | Join In commissioned an independent consultancy to value the set of 'intangible assets' that **go beyond the existing cost replacement model**.<br><br>Research focused on:<br><br>1. Volunteers in sport<br><br>2. People who played sport at a volunteer-run sports club and were therefore recipients/beneficiaries of the time volunteers put in<br><br>3. A control group of people who had never volunteered or been a member of a sports club<br><br>When they received the initial findings, they asked The National Council for Voluntary Organisations' (NCVO) research arm, The Institute for Volunteering Research to test the process and ensure the research stood up to scrutiny. To determine an economic valuation, they engaged Howard Reed, former Chief Economist at the Institute for Public Policy Research, and Economist at the Institute of Fiscal Studies. Key partners in the sports and volunteering sectors also sense checked the work as it progressed. | Survey of over 2000 stakeholders<br><br>To measure emotional wellbeing, Join In's research used the industry-wide benchmark, the New Philanthropy Capital's Emotional Wellbeing Framework.<br><br>To measure the impact on communities, they used the Revised Sense of Community Index (SCI-2) – the most frequently used quantitative measure of sense of community in the social sciences.<br><br>Authors note that the numerical evidence that was available for their modelling was limited. |

| Research | Methodology used | Data Sources |
|---|---|---|
| SportWorks[275] | **Sportsworks Impact Assessment Application** – the purpose of the economic modelling was to produce an online impact forecasting and measurement tool that is able to generate impact scores across a range of social policy areas from a single dataset on a sustainable basis.<br><br>The methodology involved asking the following research questions:<br><br>To what extent are sport for development projects working with the 'right' participants, in terms of those young people who are most 'at risk' of experiencing different social problems?<br><br>To want extent are sport for development projects using approaches that fit with 'what works' in protecting young people from experiencing different social problems?<br><br>What is the effect of sport for development project delivery in terms of helping young people to develop the skills, knowledge and resilience – or protective factors – that will reduce the likelihood of them experiencing different social problems?<br><br>What evidence of outcomes is there in terms of a reduction in the number of participants in sport for development projects experiencing different social problems?<br><br>What cost savings are associated with preventing these participants from experiencing different social problems?<br><br>Authors applied substantial research and modelling to build their findings, but indicate that there may be minor limitations in the predictive value of their model. | Their approach built a model of the impact of sport for development projects using secondary research, anonymised data relating to 160,440 participants of sport for development projects, as well as case study process evaluations with 10 projects. |
| Economic impact of events (major and non-major)[819] | The review contrasts two approaches for measuring this (although authors do not indicate if this selection is exhaustive for all events impact measurement approaches) ;<br><br>Economic impact analysis (EIA), which takes into account new and additional money coming into the city/region. Likely to find positive outcomes for mega and non-mega sport events<br><br>Cost benefit analysis (CBA). This estimates net benefits for host communities, taking into account resources needed and available to stage the event. Likely to show more positive/less negative economic outcomes for smaller scale events than mega sport events. | |

### Limitations of the data

In the majority of cases where the above econometric modelling has been used, there are **notes regarding the various limitations to the calculations**. For example, Fujiwara et al[271] state that their analysis lays out the foundation for estimating cost savings by estimating the impacts of culture and sport participation on health, education, employment and civic participation and suggest that where better/more robust exchequer-related financial savings data are available they should be used instead, alongside the impact results set out in the report.

For calculating the economic value of volunteering in relation to impact on the community there were some noted limitations – for example the report states that in economic terms, the membership of a club increases people's productivity in society, but the **numerical evidence to support this is currently limited** to such measures as increases in charitable giving from club members. As a result, the economic value of the benefits to a community cannot yet be robustly identified[637].

However, in the literature which employs or develops various economic modelling techniques there is **less confidence in causality and attribution** and calculations are often made on the **basis of assumptions**. Studies acknowledge these assumptions however, for example, Fujiwara et al (2014)[271] attests that while "throughout the analysis we control for as many of the determinants of the main outcomes as possible in regression analysis […] we cannot fully attribute causality in this type of analysis since we cannot control for unobservable factors." (Fujiwara et al, 2014, p.12). Another report[275] states that "the desire to establish 'direct causal relationships between involvement in sport and the social policy concerns of the day' remains something of a holy grail." (Crabbe, 2013, p.24).

## ECONOMIC VALUE OF SPORT TO THE UK ECONOMY

### Sport as an industry

There is a growing body of literature that considers the economic value of sport to the economy, both in the UK and abroad. A large proportion of the UK-based work has been produced by the Sport Industry Research Centre (SIRC) at Sheffield Hallam University[21].

It is clear from the literature identified as part of this review that **sport adds considerable economic value** to the UK economy, for example one report states that as a sector in the UK, sport is comparable to agriculture, forestry and fishing combined[660].

The search identified 13 studies that discussed the sport sector and its impact on the UK economy. All reports are based on secondary research and are primarily UK-based. A number of studies of generally good quality[661, 660, 750, 821,822,823,824,825] assess the macroeconomic importance of sport. One looks at 27 EU countries[660], the others at the UK or more specifically at England, Scotland or Northern Ireland[661, 750, 821, 822, 823, 824, 825]. Two discuss the economic value of volunteering, three look specifically at the contribution of outdoor sport to the economy[004, 707, 824], two reports discuss the contribution of golf[562, 825], and three at the role sport can play in the regeneration of communities, in the UK and US[157, 662].

In the UK, the **SIRC model for assessing the economic importance** of sport has been used extensively by the Department for Culture, Media and Sport and is also the model adopted by the European Commission Directorate-General for Sport and Tourism. The model is deliberately structured to avoid double counting. The only aggregation which takes place is for profits, wages and jobs per sector, which in turn generate the Gross Value Added and employment estimates.

21 www.shu.ac.uk/research/sirc

The approach **meets the quality thresholds of government statistics**, is transparent and can be reconciled to the UK's National Accounts (SRIC, 2016, p.5)[825].

The SIRC produced the UK's first **Sport Satellite Account** (SSA) for the Department for Culture, Media and Sport, outlining the value of sport in the UK. This document functions as a key performance indicator used to measure the economic importance of sport in the UK, as outlined in *Sporting Future*.

The SSA provides substantial data on all three economic indicators and these figures show an **increase in the value of sport in the UK across all three indicators**, the most significant being employment. Analysing historical trends, the report notes that the rise in employment has been greater than the corresponding rise in GVA, indicating that growth in the sport industry is particularly employment-heavy and as such is "*an effective way of creating employment and counteracting recession.*" (Kokolakakis, 2015, p. 19). [821]

It is predicted that this **share will continue to rise**[660] (albeit drawing on older data) largely due to its inter-relatedness to other sectors (e.g. tourism, education) which would normally expect expansion as economies grow.

The following table is taken from the Executive Summary (p. 3) of the 2011 and 2012 SSA, and gives an overview of the figures from 2008 to 2012 [821]:

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Sport-related GVA, £m | 29,335 | 29,455 | 33,736 | 37,252 | 38,891 |
| as % of total GVA | 2.1% | 2.2% | 2.4% | 2.6% | 2.6% |
| Sport-related consumer spending £m | 26,0101 | 24,845 | 26,405 | 27,754 | 29,207 |
| as % of total spending | 2.8% | 2.7% | 2.8% | 2.8% | 2.9% |
| Sport-related employment, 000s | 629.5 | 629.1 | 640.1 | 991.0 | 1,000.5 |
| as % of total employment | 2.2% | 2.3% | 2.3% | 3.6% | 3.6% |

While the SSA covers the whole of the UK, the review identified three reports which looked more specifically at the home nations, England[661], Scotland[822] and Northern Ireland[823].[22]

Our own research[661] placed the sport sector within the top 15 industry sectors in **England.** The report states that in 2010 sport is estimated to have generated GVA of £20.3 billion. However, the methodology used to calculate this figure may not be comparable with other SSA findings. Our report also showed that participation in sport (i.e. playing sport and related expenditure) is estimated to be responsible for 58% of sport-related GVA, with consumption-related activity (i.e. watching sport, gambling and consumption of sportswear and equipment for recreational use) responsible for 42%.

In **Scotland**, sport-related economic activity generated **£1,838m** and **£2,128m** value added in 2010 and 2012 respectively. The importance of sport, in terms of gross value added (GVA), increased from 1.5% of the national economy in 1998, to 2.0% in 2012 (SIRC, 2014, p.4)[822]. The double entry principle ensures robustness in the methodology used, although authors note that data available to describe the voluntary sector as inadequate.

22 Historical reports can be accessed on https://www.gov.uk/government/collections/sport-satellite-account-for-the-uk-statistics

In **Northern Ireland**, sport-related economic activity adds close to £639 million. The contribution to GVA by sport in the region has also grown – from 1.6% in 1998 to 2.0% in 2004, to 2.3% in 2008 (SIRC, p.7)[823].

## Employment and employability

As noted above, sport is a relatively **labour-intensive industry**[660, 661, 821]. This means that the industry's expected growth is likely to lead to additional employment, with sport's share of total employment being higher than its share of value added. The latest UK SSA finds over **one million people[23] in sport-related employment in 2012**, equivalent to 3.6% of total employment, with both figures having risen strongly since 2008[821].

In **England,** in 2010 sport and sport-related activity was estimated to support over 400,000 full-time equivalent jobs – 2.3% of all jobs in England, according to our report[661].

In **Scotland** in 2012 sport and associated industries was estimated to account for 52,300 full-time equivalent jobs, corresponding to 2.5% of total employment[822].

In **Northern Ireland** sport-related employment grew from 16,000 in the year 2004 to 17,900 in 2008. As a percentage of total employment, it increased from 2.2% to 2.3% respectively[823].

Improving the productivity of the labour force is important in relation to economic development. A productive workforce helps to improve the global position of the economy and increases welfare and usually reduces unemployment. There were a number of studies identified as part of this review which looked into the **effect of sports participation on employment/ employability, earnings, and the labour market**[145, 137, 140, 643, 651, 273, 390, 275, 540]. The individual development chapter contains further detail on this literature.

One report [275] looked specifically at putting a **value on employment impacts achieved by the Sport for Development sector** and developed a specific methodology to do so. The research showed that, in the case of those who are NEET (not in employment or education), the cost of someone who is NEET is £3,651 per annum, and involvement in a project reduces the risk of a participant being NEET by 6.79%. The saving to society of preventing/ending an individual's NEET status will be £247.90 per participant per annum.

## Sport sector's impact on other sectors

With regards to the contribution of sport to wider economic growth, the SSA methodology works on the approach that sport products and services can be found in many other sectors, e.g. in tourism, insurance, legal consultancy, and many more. Sport thus has to potential to have impacts in many different areas of the economy. The table below (SpEA et al, 2012, p.13) provides an overview of some sport-related activities and products where economic impact can be identified[660].

23 (full-time equivalent)

## CONSUMER EXPENDITURE

| Goods and Services Conditional on Doing Sport | | |
|---|---|---|
| Veterinarian | Dietary, supplements | Sport bets |
| Health services | Hotels, restaurants (sport tourism) | TV broadcasts |
| **Doing Sport (According to the Stasticical Definition)** | | |
| Stadiums | Swimming pools | Professional sports |
| **Goods and Services Necessary to Do Sport** | | |
| Racing horses | Sport shoes and clothes | Sport weapons |
| School education | Sport cars, motorbikes | Fitness centres |
| Watches, clocks | Sailing equipment | Dancing schools |

Source: SpEA et al, 2012, p.13

### Sport specific studies

#### Outdoor recreation

Three studies in this domain looked specifically at outdoor recreation[004, 747, 824].

Comley and Mackintosh's review synthesises evidence on the sector, although it is not clear how sources have been selected for inclusion.[004] The authors discuss the role of the 'outdoor economy' as a **vehicle for visitors and tourism, as well as a key source of employment** particularly in rural areas.[24] They cite a report by SkillsActive from 2006 which states that there the sector contributes £430 million to the UK economy with regard to GVA[004,] with 26,400 people directly employed by the sector (although the review authors give no further methodological detail to assess the robustness of the original study).

Gratton and Kokolakakis (SIRC, 2013, p.2) in their detailed assessment of the economic **impact of outdoor recreation in Northern Ireland** (NI) highlight how outdoor recreation is an important element within the sport industry in NI, closely associated with grassroots participation, tourism and family activity. They find that a GVA generated by the sector of £102 million, associated with 3,537 FTE employees[824].

#### Golf

The review identified two reports which focus specifically on golf and how it can impact on the economic development outcome in Sporting Future[562, 825]. One robust review of 40 papers (for economic development) illustrates how golf is of **considerable importance** to the economic contribution of sport within the UK economy and how golf's contribution to tourism, as well as hospitality, construction, equipment, clothing, betting and events, are all notable areas of overall economic impact[562].

24 Outdoors industry encompasses: outdoor education, outdoor recreation, development training, exploring and expeditions, and outdoor sports development

The second report is a **Satellite Account for golf**[825], the only analysis of its kind to be conducted for a specific sport. Its advance on previous studies attempting to value the economic contribution of golf is that its methodology avoids double counting between different industry sectors. The report demonstrates robustly that the sport is of considerable economic importance to the UK economy, and provides a **replicable baseline** of the golf industry which can be used as a benchmark against which the future development of golf can be measured. The report also suggests that as consumer confidence increases it would be reasonable to expect spending on golf equipment and clothing to increase, as these are easily deferred purchases during uncertain times. In addition, it is similarly reasonable to expect growth in luxuries such as golf-related tourism and holidays as the general UK economy expands (SIRC, 2016, p.26) [825].

### Impact of (small) sporting events and tourism

For this review, major sporting events (including the Olympics and events such as the Commonwealth Games, international and top league football) were deemed out of scope, unless they covered community participation, and a large number of items picked up in the literature searches were excluded on this basis (as very few if any did cover community participation with a focus on outcomes as required by this review). **Only a small number of sources** were identified that discussed the economic impact of smaller sporting events.

One narrative review of seven papers specifically notes that **research on the economic impact of smaller and medium-sized events, and indeed their impact more generally, is very limited** compared to the research available on large events.[819]

This review identifies one study suggesting that tourism impacts (and, by extension, the tourism-induced economic impacts) for local economies from smaller events tend to be limited, but a 'portfolio approach', where **multiple events are combined and leveraged** to support a wider strategy, has been found to enhance this. It also cites a study that finds local economic contribution from a local sport event is **enhanced when local businesses are successfully engaged** in the event. In neither case do the review authors give more detail on the methodology or robustness of the original studies.[819]

Related to this, another report on the economic importance of sport in Scotland discusses sport tourism as a 'growing trend', particularly **holidays around a mass participation event** providing opportunities for place marketing and showcasing a destination – examples include the Edinburgh Marathon and the Great Scottish Swim.[822]

Similarly, in the summary of his report on the economic impact and regeneration of local communities, Coalter references the work of Coleman and Ramchandani (without giving further detail on their methodology), who provide a review of evidence relating to the positive economic impacts of **non-elite mass participation sporting events (mostly marathons), which require little infrastructural investment but can raise place recognition and generate tourist income**. Coalter reports that the authors find displacement effects associated with elite events to be lower, and that such events can be self-financing as they can attract sponsorship; furthermore, participants are prepared to pay and such events can attract large numbers of (free) volunteers[662].

Coalter also briefly quotes Wilson who illustrates, via a study of four local swimming events, the **potential of such events to generate economic benefit to the host communities** providing that secondary spending opportunities and appropriate infrastructure are in place[662].

Two sources explored the **impacts of specific events:** one on the School Games in Manchester[803], and one on hockey league events and arenas in smaller Canadian cities[152].

- The School Games study found that the Games led to an **economic impact** of £2.16m for the city of Manchester, with the largest contributing factor being **money spent on local venue hire and event delivery**, such as local transport[803].
- The Canadian study found that new arenas for hosting hockey games do generate income for the local economy, but that this wears off due to **the 'novelty effect',** and overall the **additional economic activity from higher attendance is limited**, confirming previous research[152]. However, authors do not consider the transferability of their findings to other sports disciplines, and it is not clear whether this 'novelty effect' would also apply in the UK geographical context.

Coalter notes that while research on the economic impact of sports events has grown substantially in recent years, there is a **need for considerable rigour in evaluating current research** and undertaking **necessary additional research on a variety of events** (Coalter, 2011, p.4)[662].

Sporting Future highlights how sport can play a significant role in supporting the 'GREAT' Britain campaign to promote the UK abroad, and the UK was ranked top in a recent analysis of global soft power[25] [26]. While some of the literature discusses the importance of sport tourism, there is also discussion regarding sport's impact on the wider tourism industry and the subsequent impact on economic development [661,562].

## QUANTIFYING THE WIDER BENEFITS TO SOCIETY OF PARTICIPATION IN SPORT

As mentioned in the introduction to this section, a number of studies discussed the **economic benefits of participation in sport**, for example, the role of sport in improving employability or in reducing costs to the NHS by contributing to a healthier population, or aimed to quantify or put a 'value' on the social impacts of participation in sport.

Out of the 38 references for this domain, 23 in some way covered this aspect of the economic development domain: nine of the studies focused on **employment and employability** (see section above)[145, 137, 140, 273, 390, 275, 540, 643, 651], seven of the studies looked broadly at quantifying the '**social impacts' or return on investment**[564, 809, 271, 808, 645, 792, 533], six focused on **health**[276, 238, 302, 538, 632, 817] and one on **crime reduction**[646].

There is agreement throughout the literature that the sport sector plays a key role in generating benefits for society, and over the last decade there has been a **growing body of evidence** using econometric modelling to put a value on various factors relating to this, also known as 'wellbeing economics'[27] [637].

The increased use of economic models to quantify social benefits is a result of **these benefits historically being neglected or ignored** in discussions about how best to allocate scarce resources due to the lack of economic data. Studies note the **growing importance of being able to put a monetary value on sport and its benefits**[217, 646, 808, 809], particularly in relation to its implications for policy makers and how a monetary value can help to inform the level of investment that can be justified to promote engagement[808]. While governments

25 Sporting Future p.76
26 'Soft power' in relation to foreign policy is when countries persuade others by using networks, developing and communicating compelling narratives, establishing international norms, building coalitions, and drawing on the key resources that endear one country to another. In simple terms, 'hard power is push; soft power is pull'.
27 'the expansion of the "capabilities" of people to lead the kinds of lives they value and have reason to value' (Prof Amartya Sen)

tend to view sport as a legitimate target for government expenditure, this is often with a lack of clarity on the benefits that this expenditure has to society. This not only makes it difficult to plan the efficient use of existing budgets, but also makes these budgets vulnerable at times of fiscal tightening as governments and policy makers search for ever more cost effective solutions to the social challenges they face[646].

*"Unfortunately, sport is often seen as a 'nice to have' and its power to deliver measured returns for society is over-looked."* (Ecorys, 2012, p.4)[646]

There are **various approaches used to quantify outcomes**. This review has identified studies that use methods such as the Social Return on Investment[564], Cost Benefit Analysis[271] and the Cost Saving Calculation model[645]. The varying nature of the methodologies used makes it **challenging to make any direct comparisons** between studies, however, approaches used tend to be robust.

## Economic value of participation in sport: health

The literature on this theme discusses the **benefit to individuals from improved health** (both physical and mental) and, as a result of a healthier population, a **more productive workforce**, and **reduced costs to the National Health Service (NHS)**[276, 632, 238, 302, 538]. These studies generally are based on an argument which begins by noting the costs, to the healthcare system and the economy as a whole, of inactivity and poor health, although the costs associated with these and how to calculate them vary widely. For instance, it is reported that the cost of obesity in England (in 2007) lies around £4.2 billion to the NHS for treating obesity; and indirect costs for the wider economy around £15.8 billion.[28] Looking just at direct and preventable costs of physical activity arising for the NHS, another study estimates this at £0.9 billion (in 2006–07)[29]. Studies assume or demonstrate that participating in sport and physical activity can decrease or prevent some of these costs and as such a value can be placed on this impact in terms of costs avoided.

Studies reviewed undertake research to value the healthcare costs saved and the total economic value in different ways. For example our research identifies the annual value of health benefits generated by participation in sport as estimated to be £1.7 billion overall in terms of savings in healthcare **costs** and £11.2 billion in total economic value in 2011–2012[661].

A report by the Sport and Recreation Alliance breaks the issue down further, collating evidence on how sport can have a positive impact on various **individual physical and mental health conditions** that currently cost the NHS significant amounts of money. For example, in relation to cardiovascular diseases the report cites figures that overall they cost the UK economy £30.7 billion a year. The report also refers to a study (Barton et al., 2011) which found that it is thought that reducing cardiovascular disease (through physical activity) in 1% of the population of England and Wales would save the NHS at least £30 million a year.[276] However, the author does not detail how sources were selected for this review or which methodology was used within the Barton et al. study.

Research by Streetgames discusses the cost to the NHS of **inactivity, specifically in children and young people**, it points to evidence that physical inactivity among today's 11–25-year-olds will cost £53.4 billion over their lifetimes, and of these costs, £8.1 billion are directly related to the healthcare expenditures that will be needed to deal with the burden of Type II diabetes, chronic heart disease, strokes and colon cancer among this cohort as they age (Streetgames, 2014, p.23)[302].

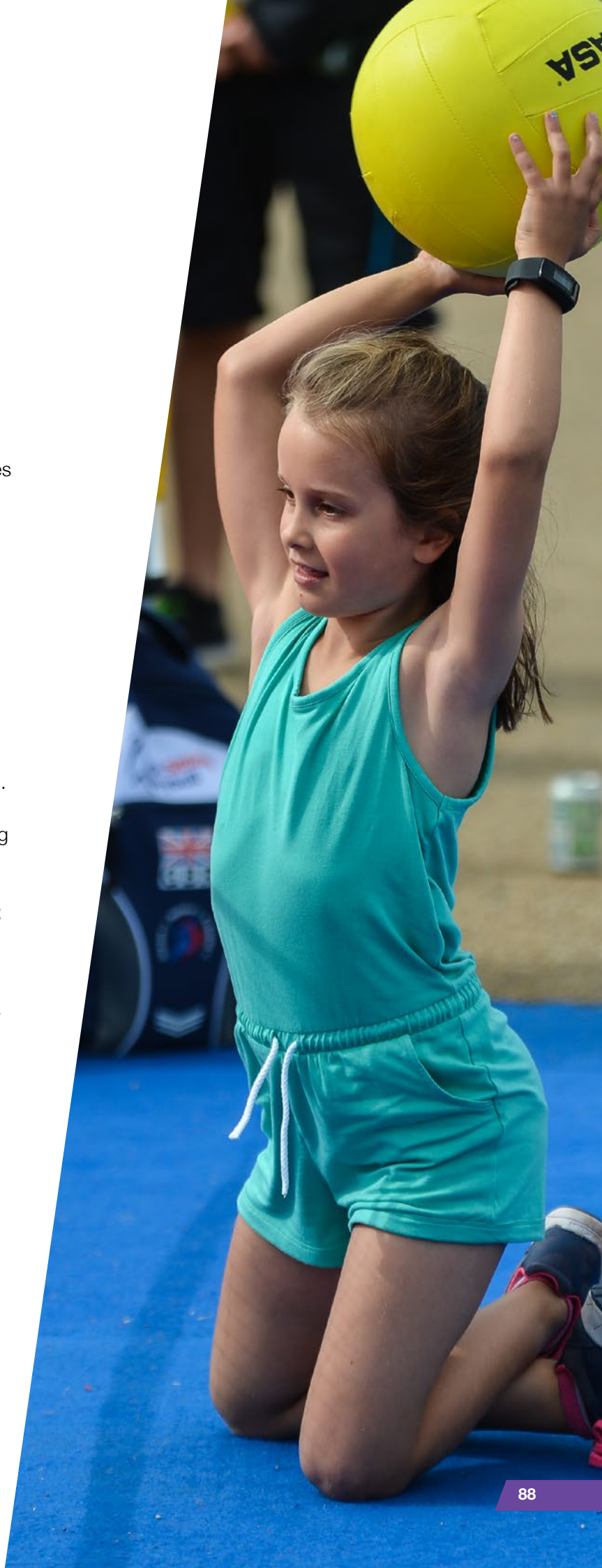
28 http://www.noo.org.uk/NOO_about_obesity/economics

29 In Scarborough P, Bhatnagar P, Wickramasinghe KK, Allender S, Foster C, Rayner M (2011) The economic burden of ill health due to diet, physical inactivity, smoking, alcohol and obesity in the UK: an update to 2006–07 NHS costs. Journal of Public Health 33 (4): 527–535.

### Economic value of participation in sport: crime reduction

The literature supports the notion that sport can contribute to a reduction in youth crime and anti-social behaviour, particularly among young people[661, 646] (see also the sections on community development and individual development for further discussion on the literature directly relating to this outcome).

Just one report was identified in this review that uses economic evaluation methodologies to calculate the economic impact of crime reduction as a result of participation in sport. However, the data included in the report, of primary research undertaken in three European countries, builds on similar previous reports. It adapts and develops a methodology that was originally developed by the Prince's Trust, which estimates that the average cost of a youth crime is £6,400 (no details on the methodology are provided in the report). The majority of these costs fall to public services and to the victims involved. A high proportion of young offenders (33%) re-offend, and on average 2.8 times, resulting in multiple costs overall. It shows that **on average across the four programmes analysed, sport provides a return of 5.02 Euros for every 1 Euro invested** through savings related to reductions in crime, truancy, and ill health[646]. The report does not go into greater detail about the methodology and how it was applied in each case study.



The following table outlines some of the further findings from the report.

| Intervention | Economic benefit/value |
|---|---|
| **Sport and Thought**: focuses on providing 20 challenging pupils in Year 9 most at risk of school exclusion with a combination of weekly after-school sport (football) and psycho-therapeutic group sessions.<br><br>The study included a comparison group demonstrating specific impacts achieved for the intervention group. | Overall, it is estimated that the project helped save the public sector £73,900 through avoiding the additional educational costs associated with persistent disruptive behaviour and truancy, and the costs associated with permanent exclusions.<br><br>Taking into account the project's impact and costs, it is estimated that Sport and Thought has provided a return on investment of **£6.58 for every £1 spent**. |
| **KICK IM Boxring (Germany)**: act pre-emptively against children and young people sliding into crime by engaging them in sport. offers varying levels of competitive boxing training | KICK Im Boxring has resulted in around 40 crimes being avoided among participants, delivering an estimated EUR 325,184 (£260,147) worth of savings to society. The project delivered smaller positive impacts in terms of school truancy and exclusions, and helping young people to stay in or move back into further education (largely since it was not focused on these target groups). However, due to the high costs and benefits to society associated with such outcomes, it is estimated that the project still delivered Euro 92,815 (£74,252) worth of benefit in this area.<br><br>Over the past year, around 6,500 extra sessions of physical activity (of at least 30 minutes) were participated in thanks to KICK Im Boxring. This equates to a total of 1.5 additional years of (quality adjusted) life expectancy gained, with a value of Euro 36,526 (£29,221).<br><br>Overall estimated that KICK Im Boxring has delivered at least EUR 249,357 (£199,486) of additional social benefit from engaging with its participants. With the annual cost of the project running at EUR 72,600, this delivers a benefit to cost ratio of **3.43 Euro for every 1 Euro invested**. |
| **Fight for Peace** is a Laureus-supported project in east London that uses boxing and martial arts as a means to re-engage and support young people with their personal development. (London) | Across the 800 participants, it is estimated that Fight for Peace has resulted in 165 crimes being avoided, delivering £1,059,471 worth of savings to society.<br><br>Overall, the lifetime educational and employment impacts of Fight for Peace are valued at £2,456,861.<br><br>Around 59,269 extra sessions of physical activity (of at least 30 minutes) were participated in thanks to Fight for Peace. This equates to a total of 14.1 additional years of (quality adjusted) life expectancy gained, with a value of £264,812.<br><br>Taking this into account, overall it is estimated that Fight for Peace has delivered at least £2,563,730 of additional social benefit over the past 12 months. With the cost of the project running at £580,000, this delivers a benefit to cost ratio of **£4.42 for every £1 invested**. |

| Intervention | Economic benefit/value |
|---|---|
| **Midnight Basketball**: The project aims to keep young people with low levels of motivation off the streets during late-night hours through basketball. (Italy) | Across 200 participants, Midnight Basketball has resulted in around 24 crimes avoided, delivering EUR 191,489 (£153,191) worth of savings to society.<br><br>The educational and employment impacts of Midnight Basketball are valued at EUR 185,467 (£148,374), particularly positive given the high rates of NEET in Italy.<br><br>Around 4,256 extra sessions of physical activity (of at least 30 minutes) were participated in thanks to Midnight Basketball. This equates to a total of 1 additional year of (quality adjusted) life expectancy gained, with a value of EUR 23,772 (£19,018). Taking this into account, overall it is estimated that Midnight Basketball has delivered at least EUR 316,902 (£253,522) of additional social benefit over the past 12 months.<br><br>With the cost of the project running at EUR 56,180, this delivers a benefit to cost ratio of **EUR 5.64 for every 1 EUR invested**. |

## Economic value of volunteering in sport

Two sources attempted to put an **economic value on the benefit of volunteering**[661,637]

Our report on the Economic Value of Sport in England states that there are over 6,000 voluntary sport organisations in England and more than 3.2 million adults (3,265,300) – 7.6% of the population – contribute to volunteering in sport. This report states that the economic value of volunteering in England was estimated in 2010–11 to be £2.7 billion.[661]

**Join In's report 'Hidden Diamonds'**[637] cites the same figures as our report for the number of people who volunteer regularly in sport, noting that sport is the single biggest sector for volunteering in the UK. The report states that volunteering in sport contributes to the wider charitable objectives of sports organisations, and the volunteers themselves derive a range of benefits from the experience and satisfaction of volunteering.

As outlined in the 'Measurement' section above, Join In's report rests on a **new methodology** for valuing the benefits of volunteering, using a **return on investment approach** that considers volunteers as investing their time. The approach also considers the wider impact of volunteering, such as how volunteering encourages wider participation in sport, and how volunteering can be an effective way for people to alleviate the symptoms of major societal problems, including isolation, loneliness and depression, which pose huge costs to UK health budgets[637].

Join In's research combines the emerging science of the 'economics of wellbeing' with traditional approaches and wider industry research; they value the contribution of volunteering in sport to society by adding the following factors:

1. The economic value of the time given by the volunteer.
2. The value of the personal wellbeing, mental and physical benefits to the volunteer.
3. The participation capacity and benefits (personal wellbeing, mental health, physical health) that every volunteer supports.

Assuming that these benefits are all separate and additional to each other, then the final figure suggests every individual volunteer in sport produces over £16,032 worth of social value to communities in the UK; this translates to £53 billion across all volunteers in sport.

This different methodology applied by Join In produces a significantly higher value for volunteering in sport than our figures cited above. As this is a new methodology, it remains to be seen whether other studies using a similar approach can confirm this figure.

## CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS

There was very little material in this domain on what makes interventions effective. This was largely due to the nature of the sources, most of which were concerned with modelling the value of the impacts of sport, or calculating the economic contribution of sport on a macro level, rather than looking at the characteristics of these specific interventions. Some sources discuss characteristics of successful interventions based on their successes in achieving social outcomes, which can subsequently be valued through econometric modelling, but these characteristics are discussed in other domains in this report.

## GAPS IN THE EVIDENCE BASE

On a macroeconomic level, the evidence base for the value of sport as a sector as a whole is covered well, with the SSAs, the pan-European report, and other valuations for individual nations and regions providing robust, detailed evidence on the impact of sport here. However, there is a gap around further studies to the same level of robustness for **other types of sport**, comparable to those found for golf and outdoor recreation discussed in this chapter.

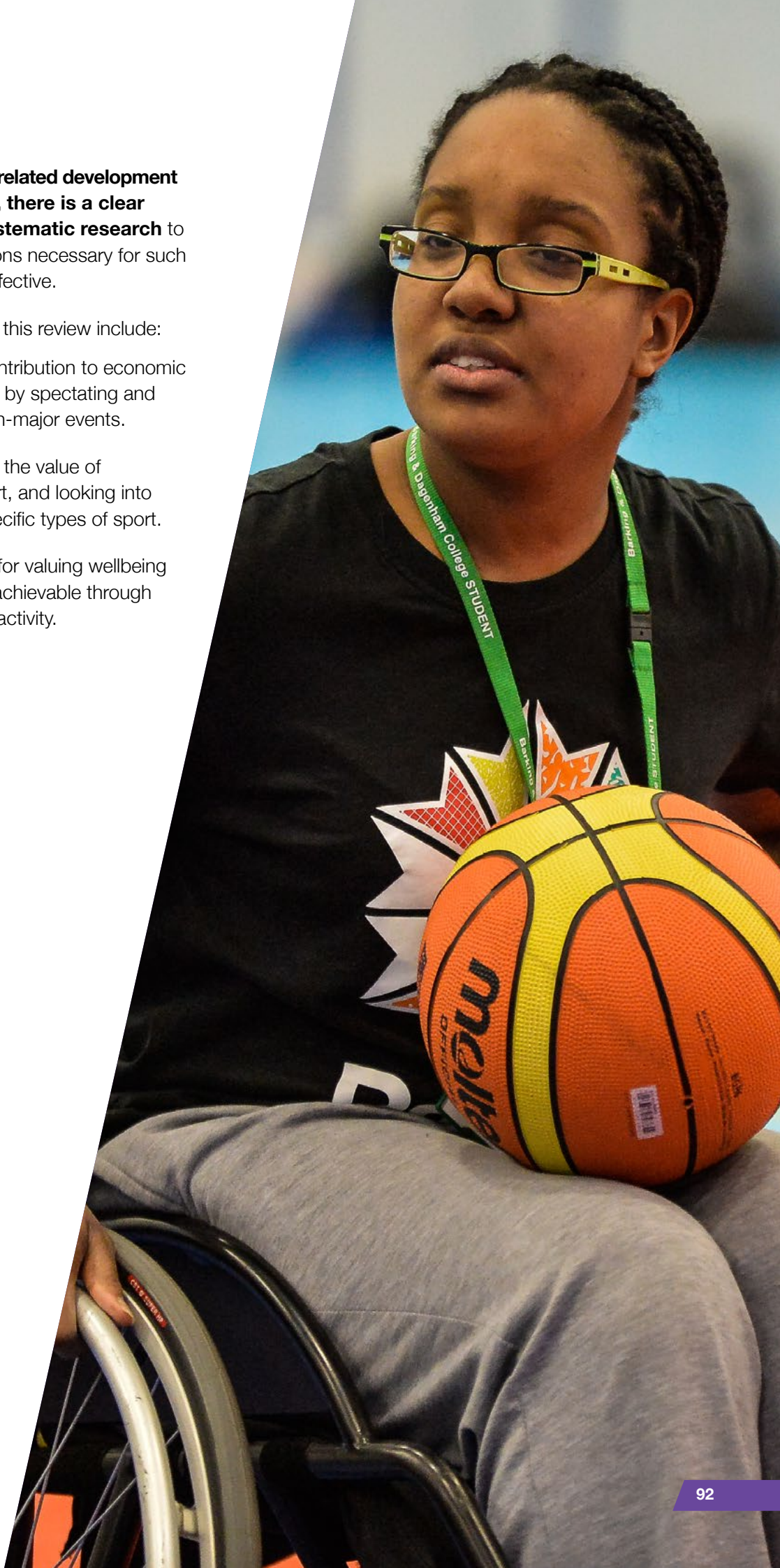
One report recognises that, because research on the economic impact of sport covers a wide and diverse range of issues, it is difficult to provide a succinct summary of priority research needs[662]. However, a number of the reports[646, 662] provide **recommendations for future research**. The following outlines a few considerations:

- Governments, funders and universities need to continue investing in **robust research into the social and economic returns of sport** – with a view to deepening the collective understanding of what good practice looks like in this space, and how exactly sport can best be used to achieve value for society. As a minimum, this should involve primary research with project participants, and where possible take a longitudinal approach and use suitable control groups to help assess impact.
- Two common factors are debates **about definitions** and an urgent need for the **improvement of data sources and estimation techniques**. The variation in definitions and the variable data sources place substantial limitations on comparisons in many areas – especially health-related savings and macro-economic impacts.

- In the area of **sport-related development and regeneration, there is a clear need for more systematic research** to explore the conditions necessary for such investment to be effective.

Other gaps identified in this review include:

- The value of the contribution to economic development made by spectating and broadcasting of non-major events.
- Further studies into the value of volunteering in sport, and looking into volunteering for specific types of sport.
- Definitive methods for valuing wellbeing gains that may be achievable through sport and physical activity.



# CHARACTERISTICS OF SUCCESSFUL INTERVENTIONS (GENERAL)

Factors that make an intervention effective were not always clearly linked to specific outcomes, rather they were around what makes for successful interventions with a particular subgroup, or in general. Some of this evidence focused on older people, with children and young people, and people with specific long-term conditions also covered. These findings are listed below.

## OLDER PEOPLE

Some themes emerged across the recommendations for interventions designed for older people. A key source for these findings is the British Heart Foundation's evidence-based guidelines for engaging older people in physical activity[017]. Recommendations included the following:

- Programmes should be tailored and **adapted to the individual**[115, 017].
- Programmes should be informed by qualified **practitioners with experience of working with older people**[017, 218].
- There was varied evidence on **individual- versus group-based** activities:
  - Some evidence suggested that individual programmes, carried out either at home or within the community, had positive effects for older people[218, 205, 017].
  - Other evidence pointed to group-based activities being effective[017].
- **Non-face-to-face** programmes could have benefits of older people[237], with clear instructions to guide the activities[017].
- One study notes the value of providing a **consistent message** around physical activity across professional services; the importance of providing **progress reviews** and fostering a **collaborative approach** to developing exercise programmes[017].

## CHILDREN AND YOUNG PEOPLE

There were suggestions around what works in engaging children and young people in sport and physical activity. Key sources included a meta-analysis (15 studies) on interventions targeting pre-schoolers[047], a British Heart Foundation (BHF) evidence briefing on physical activity in the early years (0–5years)[534] and a systematic review on implementing school-based physical activity[356]. Recommendations were as follows:

- The evidence for successful intervention design for children and young people commonly mentions the **role of others**[341, 534, 047]
  - Training for practitioners (e.g. teachers nursery staff) supports them in delivering physical activity programmes[534, 356, 629].
- Both **structured and unstructured** activities were identified as having value:
  - Structured activities for 30–45 minutes for five or six days a week over a year were recommended by the BHF[534].
  - Unstructured activities could promote physical activity, including the use of play and regular activity breaks during the day[534, 047].
- **Having fun** was seen as a key feature of children and young people's participation in physical activity[341] (this study related to visually impaired children)
- **Equipment** and a supported physical **environment** are important to supporting children and young people to participate in physical activity[534, 356, 047].

## LONG-TERM CONDITIONS

There was evidence on what works for a number of specific conditions, as follows (noting that in some cases the outcome was increased participation):

- **Cancer**: individualised physical activity programmes for individuals with a cancer diagnosis could have a positive impact; however, activities should be considerate of the potential health side effects and should not include high intensity exercise which could exacerbate symptoms (findings from a narrative review by Macmillan Cancer Support)[817].
- **Rheumatoid arthritis**: social networks could be used to promote participation in physical activity for people with rheumatoid arthritis. It is recommended that activities should be individualised taking into account the specific barriers and limitations individuals might have (findings from a narrative review published in the peer-reviewed journal Sports Medicine)[680].
- **Heart disease**: Programmes delivered outdoors promoted formal and informal physical activity and increased the amount of physical activity undertaken by individuals (finding from Public Health England's Everybody Active Every Day)[192].

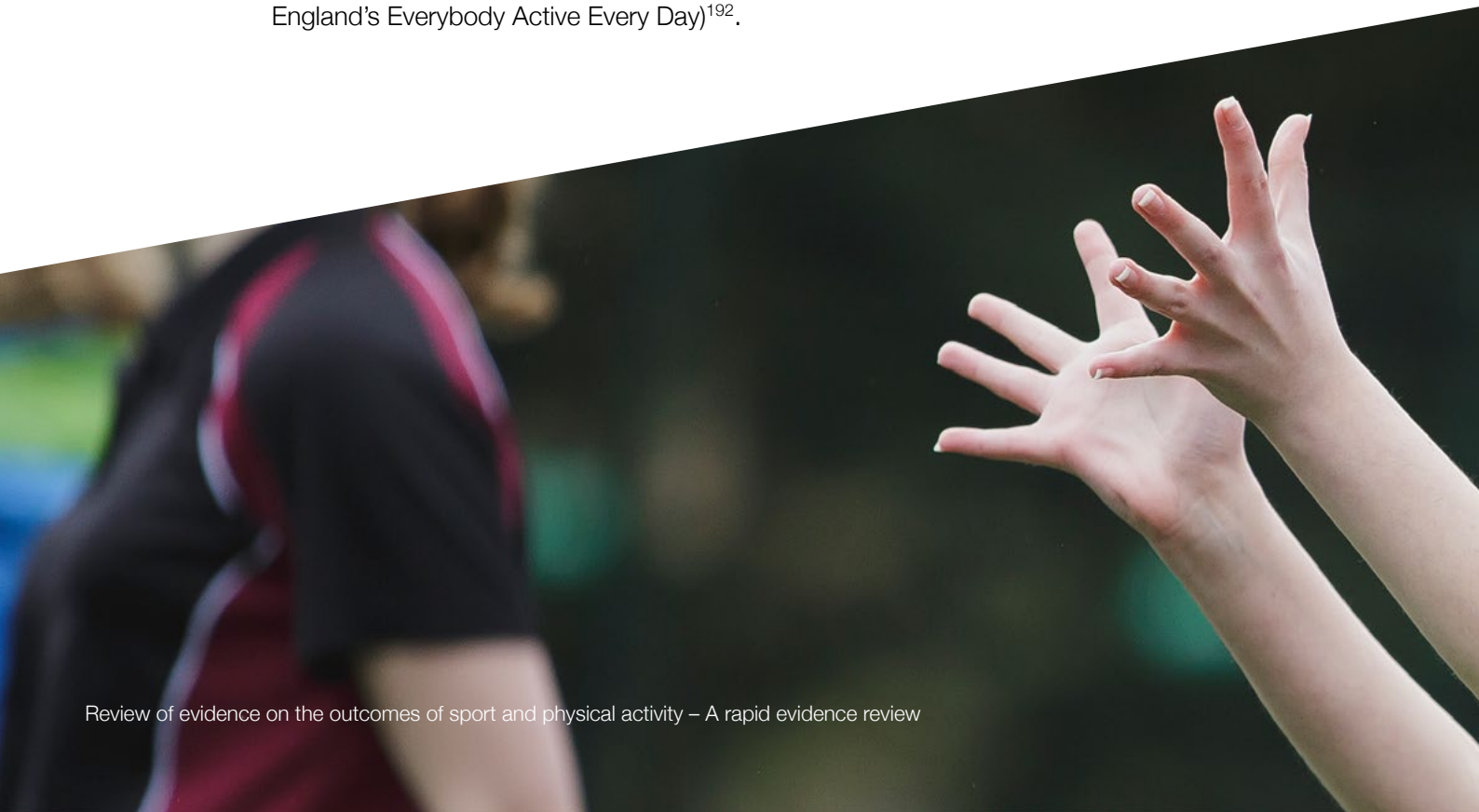
## POST-NATAL WOMEN

**Goal setting, reviewing and self-monitoring** were cited as effective in increasing physical activity levels among post-natal women (from a systematic review and meta-analysis of interventions supporting behaviour change with post-natal women)[345].

## INACTIVE PEOPLE

A review of research and practice commissioned by us on interventions to promote physical activity among inactive populations recommended that interventions:

- Are **designed with the specific participant group in mind**.
- Focus on **collaboration across agencies** to ensure the intervention is delivered in a flexible and adaptive way[632].



## CRIME AND ANTI-SOCIAL BEHAVIOUR

Programmes attempting to reduce crime through sport should form **part of a wider programme** of activities, it was noted in a number of narrative reviews[542, 792, 815] and one mixed methods study[646].

Research for sportscotland found that sporting programmes can only achieve outcomes if they are concerned with the **broader context of participants' everyday lives**[792].

## OTHER/GENERAL

Some additional factors to consider across successful intervention characteristics included the potential of **social networks** to drive forward physical activity behaviour and promote a check-in and monitoring system[043, 813]. As mentioned in relation to some specific groups, evidence also suggests the general value of **individually tailored** programmes which included **goal setting** and incorporated **community support**[813].

Examples from the C3 Collaborating for Health report, which includes case studies of 'what works', included:

- Set up a buddy system.
- 'Contract' with another person to meet goals.
- Use phone calls and discussion groups[813].

# CONCLUSIONS

This review examined the evidence base relating to the relationship between sport and physical activity and a range of outcomes. The review responds directly to the Government's Sporting Future strategy which places high expectations on the role which sport can contribute positively to some of the most fundamental aspects of our lives – our physical and mental wellbeing, our personal development as individuals, our social networks and communities, and the economy.

Given the large scale of the evidence base, particularly around some of the outcome areas, the challenge of selecting sources for inclusion was significant. By focusing on systematic reviews and meta-analyses alongside other high quality types of evidence,it was possible to access a large body of evidence, focusing on the UK but also drawing on relevant international material, and despite the variation in the amount of evidence around each outcome area, to achieve coverage of each outcome area.

As expected, the evidence base for the different outcomes varied in quality and size, with physical and mental wellbeing being well-explored, individual development fairly well-explored, and evidence on community and economic development (not including evidence on major events) more patchy. There was much interlinkage in terms of the outcome areas. Overall, the literature is also dominated by evidence on the outcomes gained through participating in sport and physical activity, with far less evidence about the outcomes associated with volunteering and spectating at the local/community level.

## SUMMARY OF THE EVIDENCE

The findings around each outcome area are summarised below.

***Physical wellbeing*** had, as expected, a very well-established evidence base, and the most robust perhaps in part because the measurement of physical wellbeing outcomes is supported by well-established and often validated measurement tools (compared to 'softer' outcomes like self-esteem or social skills). A large amount of evidence pointed to beneficial impacts of sport and physical activity on physical wellbeing, in terms of **prevention of ill health** (including cancer, stroke, type 2 diabetes and heart disease), **therapeutic and management** effects (particularly for people affected by cancer), improvements in **strength, balance, gait and motor skills** (with the literature tending to focus on older or younger people as well as on rehabilitative contexts), and maintaining a **healthy body weight**.

Other physical wellbeing outcomes evidenced included improved quality of **sleep**, increased **energy** levels, healthy **early years development**, reduced **risky behaviours** such as smoking, reduced **mortality**, effective **pain** management and improved quality of life in **ageing**.

*Factors affecting the effectiveness of interventions for physical wellbeing* were often, as was the case across all of the outcome areas, specific to particular interventions or subgroups of participants. However, a number of generic characteristics of successful interventions were identified. For example, more **intense and sustained activity** leads to greater physical wellbeing benefits; taking

part in a **range of physical activity types** generates greater benefit than one type (resistance, aerobic, weight bearing); certain benefits may only be realised from physical activity as **part of a wider healthy lifestyle**.

*Scope for further research on physical wellbeing*. Perhaps not surprisingly, evidence for physical wellbeing outcomes focused on participation, with volunteering less well covered than by other outcomes. Future research could shed light on whether volunteering leads to positive outcomes in terms of physical wellbeing.

***Mental wellbeing*** also has a large and well-established evidence base, although challenges around the varied definitions used in mental wellbeing and the subjective nature of measures were noted. Many authors highlighted the difficulty of claiming causality between sport and physical activity and mental wellbeing outcomes. That said, there was much evidence that they contributed to **enjoyment or happiness**, or more broadly to **life satisfaction**. Often the element of social interaction was cited as central to this. Volunteers and sports fans also experienced increased life satisfaction, associated with having a sense of purpose and pride. **Self-esteem and confidence** were found to increase through short- or long-term participation or volunteering, because of the opportunity to develop new skills and relationships. There was general agreement that sport and physical activity have the potential to **reduce anxiety and depression** symptoms, with most evidence on this focusing on specific subgroups.

Other positive outcomes for mental wellbeing included improved **cognitive functioning**, benefits for people with **dementia**, and impacts around **emotion regulation**.

*Factors affecting the effectiveness of interventions for mental wellbeing* were specific to particular interventions and subgroups of participants, most often older adults. Common factors were incorporating social interaction into programmes, encouraging regularity and duration of engagement, and interventions involving physical activity alongside other support such as counselling.

*There is scope for further research* in terms of **longitudinal studies** to explore the long-term impacts of sports on mental wellbeing, or to consider the sustainability of interventions. In addition, the evidence base leans towards broad, overarching concepts of mental wellbeing, tending not to consider the underlying constructs beneath broad brush terms like anxiety. This lack of specificity has implications for understanding the relationship being measured and the transferability of findings into practice.

***Individual development*** has a substantial evidence base which reflects the growing interest in this relationship. It included evidence of improved **educational attainment**, either directly (improved grades, school engagement, behaviour and reduced absenteeism) or indirectly (by enhancing skills such as self-control and concentration, team-working and time management). Positive impacts on **employability** were discussed in terms of employment opportunities, earnings, job performance and job satisfaction. The evidence on **NEETs** found positive impacts of sport participation or volunteering in terms of

employability, but only a very small number of sources addressed it. A substantial body of evidence finds a positive association between sport and physical activity and **self-efficacy** (for example, motivation, goal setting and commitment), for groups including the elderly people and disaffected young people.

Other outcomes in the area of individual development were an increased **willingness to volunteer** and the development of **soft skills** (such as integrity, responsibility and leadership).

*Factors in more successful interventions in relation to individual development* were wide ranging and specific to interventions. Some themes that occurred more than once were longer duration of engagement, and integration of physical activity with strategies such as self-reflection (reflecting back on what has been learned through taking part).

*Further research* could shed light on the potential negative outcomes associated with participation including the links between sport and **anti-social behaviour**, with some evidence finding that sport can promote anti-social behaviour by intensifying competitiveness or through its links to increased alcohol consumption, while there is also strong evidence that in some circumstances sport participation is related to better self-control, which is associated with reduced alcohol and drug use.

More long-term studies are needed to establish the overall impact of fixed term interventions.

***Community development*** is one of the hardest outcomes to evidence, because the concepts involved – social capital, trust, networks – are notoriously hard to define and measure. That said, there was some compelling evidence particularly around the role of sport and the integration of **migrants**. Sport was widely seen as a potential conduit for people of different backgrounds to interact, building **bridging capital**, via participating, volunteering and spectating. Though the majority of the evidence-related to migrants and sport as an opportunity to adapt to differences between their country of origin and their host country ('acculturation'), it also covered bridging divides between men and women, homeless people and those who are not homeless, and people with different employment backgrounds. Equally interesting was the small body of literature on sport and **bonding capital**, which suggested that sport helps to build bonds and relational skills between members of communities.

There was some evidence focusing on **volunteers**, in which their motivations and outcomes overlapped both the personal and the community level – for example, volunteers built links and bonded with others which increased their sense of community and citizenship.

*A key factor associated with interventions that have successful outcomes* at the community level was offering types of opportunities that are appropriate and appealing, especially for children and young people, and considering the wider context of their lives (sport and physical activity alone will not necessarily lead to outcomes, because of other influencing factors).

*There is considerable scope for building the evidence base further around community development*, with current research characterised by uncertainty about the direction of causality between sport and physical activity and community development and a lack of conclusive evidence for the impact of different types of activity on social capital. More effective measures for social and community outcomes are sorely needed.

***Economic development*** yielded a variety of sources in terms of breadth and depth, despite making up a relatively small proportion of the sources identified. Some larger papers included complex economic data and explanations on econometric modelling/analysis techniques. There was some evidence on the **direct impact** of the

sport sector on the economy (largely in terms of **gross value added** or **job creation**), and more evidence on the **indirect impact** of participation in sport and physical activity on the economy (**reduced healthcare costs** due to a healthier population, **reduced crime**, or **improved employability**).

Only a small number of sources looked at the economic value to the UK or local economies of sports as an industry, e.g. the value of gyms, clubs and other facilities; of clothing and retail; of spectating/broadcasting of non-major events.

*Further research on economic development* could focus on critically evaluating the wide range of methods in use for **calculating the economic value of participation**, **with a view to recommending a standardised approach**. This would help evidence the value of, and enable robust comparisons between, interventions. In particular we need a shared understanding of how best to place a monetisable value on social outcomes, for example around health and crime, at population and local level. Another area for further research is the economic impact, either local or national, of non-major sporting events, as current research in this field appears to be dominated by focus on major events. The major events literature, although excluded on this occasion in order to help keep the scope manageable, would in itself merit analysis in a future iteration of this review.

## KEY MESSAGES

The review has identified a wealth of findings, different aspects of which will be of interest to different stakeholders. The following points were highlighted by OPM as key messages that may be of particular relevance for us.

- **The evidence base looks very different across the five outcome areas**. When we compare the evidence base across the different outcome areas, some very clear themes emerge around the relative volume and nature of the evidence for the five different outcomes. The evidence that sport and physical activity can improve physical health and wellbeing is widely accepted and the causal links can often be conclusively drawn (this is not to say that there is no scope for further research – the sports and health sectors could benefit from access to more robust evidence around how different intervention designs compare to each other in terms of their effectiveness, for specific groups). The association between mental wellbeing and sport and physical activity is also well evidenced, but here the precise mechanisms and relationships are less well understood. More emerging fields of research exist around individual development, with great interest in the potential of sport to bring about positive outcomes in this area, particularly for young people, and community development, where interest and expectations are high, but where concrete evidence is scarcer. Economic development as an outcome area presents a different type of evidence base, especially if we focus on smaller, more local economic impacts which are likely to be of interest to local commissioners and providers: in this respect there is very little evidence.
- **The evidence is heavily dominated by research on sport participation, over volunteers and spectators**. There is evidence on volunteering and spectating at large events, but the evidence for these modes of engaging with sport on a smaller scale – at local, community level – is lacking. There is scope for improving our understanding of the outcomes of this and the mechanisms through which they are brought about. Spectating has received especially little attention, but since it offers the potential to reach many people, the question of how to generate positive outcomes from sports spectating at the local or community level merits further focus.

- **Evidencing outcomes requires new ways of, and greater consistency in, measuring impact**. With the exception of physical wellbeing, where a range of validated and well recognised measures can be used, the outcomes of sport and physical activity have presented serious challenges in terms of measurement. Many authors reflect on the difficulties of asserting causal links between activities and outcomes. There is a clear need to establish shared definitions for outcomes areas (e.g. 'self-efficacy', 'social trust' and 'social value'), to run a search for existing validated measures to assess whether they are 'fit for purpose', and if they are not, to design and validate new tools.
- **Responsibility for measuring different outcomes**. Reflecting on the evidence, particularly in the economic domain, it would seem logical to conclude that the further away the type of impact is from the individual, the harder it will be to measure (and to attribute, as the number of confounding variables increases exponentially). As the impact moves further away from the individual, the task of measuring impact will necessarily need to shift away from providers, who cannot reasonably be expected to hold this responsibility. It will need to be clear to the sector who holds this responsibility and what the process is.
- **A lot of 'what works' learning is highly specific**. At a very general level, it has been possible to identify some factors that increase the likelihood of the effectiveness of an intervention, such as inclusive approaches, appropriate environments and sustained or continuing engagement. There was also some evidence that smaller scale, local sports opportunities may have greater benefits than large high profile events (excluding economic benefits, around which we did not look for comparisons). However, it was striking that on the whole, the evidence tended to be specific to particular interventions and their target groups rather than generalisable. Though it lacks the appeal of a simple set of rules for what works, there is much learning for those designing or funding interventions within this review and in the sources informing it.
- **A framework for thinking about sport and outcomes**. A theme that recurred across the outcome areas was the importance of considering individuals in the broader context of their everyday lives, and how sport and physical activity fits into this as one of many contributing factors to wellbeing on personal, social and community levels. Sport and physical activity should not be viewed as a magic bullet for ill health, unhappiness, isolation or conflict – we need to understand what it is about these activities that addresses these things and how they are situated within the 'layers of influence' that determine outcomes for an individual. The evidence repeatedly identifies social interaction as a key aspect of sport in generating outcomes, so thinking about how to integrate this into interventions in a meaningful and sustained way may help to maximise positive connections and greater understanding between individuals, families, friends and colleagues, communities and wider society. Those responsible for provision should ask how we can: use sport and physical activity as a conduit for cultural awareness; promote a cycle of engagement across generations; and place sport and physical activity at the heart of a healthy lifestyle, with multi-dimensional benefits.

- **Gaps in the evidence**. While there is a wealth of evidence about the impact of sport and physical activity on people who engage with it as participants, there is very little research about outcomes on sport volunteers or spectators (at local level, i.e. not at major events). Where studies have looked at the impact on volunteers, they tended to compare sport volunteers with no volunteers. It may be of value to compare outcomes for sports volunteers against those in other sectors to consider the specific impacts of the sporting aspect of their volunteering. More longitudinal studies are required to identify the long-term effects of sport and physical activity, particularly on mental wellbeing, individual development and community development.

# APPENDIX 1: SOURCES REVIEWED

| Ref | Author(s), Date and Title |
|---|---|
| 004 | Butler, S., Comley, Y (2014) ***Reconomics: the economic impact of outdoor recreation,*** Sport and Recreation Alliance |
| 014 | Kemlo, G., Owe, E. (2014) ***A review of the evidence of legacy of major sporting events,*** Scottish Government |
| 017 | BHF National Centre (2013) ***Older adults: practical strategies for promoting physical activity,*** BHF National Centre for Physical Activity and Health |
| 028 | Urbina C A.J., et al (2015) ***The effects of physical exercise in children with attention deficit hyperactivity disorder: a systematic review and meta-analysis of randomized control trials*** Wiley-Blackwell |
| 029 | Dale H., Brassington L., King K. (2014) ***The impact of healthy lifestyle interventions on mental health and wellbeing: a systematic review.*** Mental Health Review Journal, vol. 19 (1), pp.1–26 |
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# APPENDIX 2: SEARCH TERMS

Search strategies varied according to each database searched, but the following illustrate a typical set of search terms for each outcome area:

### Physical wellbeing

((well being or wellbeing or (quality and life)) and (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games)

*Additional searches to pick up health conditions:*

(sport* or "physical activit*" or fitness or exercise or recreati*) *AND* **TOPIC:** (Outcome* or intervention*) *AND* **TOPIC:** (public health or medic* or Diabetes or cancer* or dementia or strokes or heart disease or depression)

### Mental wellbeing

("well being" OR wellbeing OR "quality and life" OR stress OR anxiety OR depression OR cognitive OR "self esteem" OR confidence) AND ti(sport* OR "physical activit*" OR "physical exercise")

### Individual development

("individual develop*" OR "personal develop*" OR employabil* OR resilien* OR character OR neet* OR attainment OR teamwork OR skill* OR happiness OR leadership) AND ti(sport* OR "physical activit*" OR "physical exercise" OR recreati*)

### Community development

("community development" OR "social capital" OR belonging OR "social cohesion" OR "social impact") AND ti(sport* OR "physical activit*" OR "physical exercise" OR recreati*)

### Economic development

(sport* OR "physical activit") AND ("economic development" OR "economic value" OR "economic change" OR employment OR "job creation" OR exports)

# APPENDIX 3: SEARCH LOGS

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 1 | 5.07.16 | Planex | Wellbeing | 2006–16 | (well being or wellbeing) and sport | 23 selected from first 50 references from a search which generated 309 hits | (not sifted, date range too wide) |
| 2 | 5.07.16 | Planex | Wellbeing | 2006–16 | (Health or stress or confiden* or mental or physical*) and sport | 31 selected from first 50 references from a search which generated 903 hits | (not sifted, date range too wide) |
| 3 | 6.07.16 | SPP | Wellbeing | 2006–16 | (((well adj being) or wellbeing) and (Sport* or excercise or (physical adj activity))) | 31 selected from first 40 hits from a search which generated 189 hits | (not sifted, date range too wide) |
| 4 | 6.07.16 | Web of Science | Wellbeing | 2006–16 | As above<br><br>Social sciences, UK only | 25 selected from first 50 hits from search on Web of Science giving 1000+ hits UK only | (not sifted, date range too wide) |
| 5 | 6.07.16 | Planex | Community and economic development | 2006–16 | (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games) and ((community adj development) or (social adj capital) or (economic adj development) | 29 selected from first 50 hits<br><br>Some duplication between this search and earlier Planex searches. 1000+ hits | (not sifted, date range too wide) |
| 6 | 11.07.16 | Planex | Wellbeing (children ONLY) | 2006–16 | (well being or wellbeing or (quality and life)) and (sport* or (physical adj activit*) or fitness or exercise or recreati* or games) and (child* or adolesc* or teenage* or youth or young) | 106 selected from 385 hits | (not sifted, date range too wide) |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 7 | 11.07.16 | SPP | Wellbeing (children ONLY) | 2006–16 | 1 ((well being or wellbeing or (quality and life)) and (sport* or physical activit* or fitness or exercise or recreati* or games) and (child* or adolesc* or teenage* or youth or young)).mp. [mp=abstract, title, publication type, heading word, accession number] (472)<br>2 limit 1 to yr="2006 -Current" (206)<br>3 (adult* or (old adj Poeple) or older).mp. [mp=abstract, title, publication type, heading word, accession number] (106314)<br>4 limit 3 to yr="2006 -Current" (30103)<br>5 ((well being or wellbeing or (quality and life)) and (sport* or (physical adj activit*) or fitness or exercise or recreati* or games) and (child* or adolesc* or teenage* or youth or young)).mp. [mp=abstract, title, publication type, heading word, accession number] (472)<br>6 limit 5 to yr="2006 -Current" (206)<br>7 6 not 4 (148)<br>8 scotland.mp. [mp=abstract, title, publication type, heading word, accession number] (19653)<br>9 limit 8 to yr="2006 -Current" (3392)<br>10 7 not 9 (141) | 141 all selected | (not sifted, date range too wide) |
| 8 | 11.07.16 | Planex | Wellbeing (excluding children) | 2011–16 | 1 ((well being or wellbeing or (quality and life)) and (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games)).mp. [mp=abstract, title, publication type, heading word, accession number] (1036)<br>2 limit 1 to yr="2011 -Current" (206)<br>3 (child* or adolesc* or teenage* or youth or young).mp. [mp=abstract, title, publication type, heading word, accession number] (160199)<br>4 limit 3 to yr="2011 -Current" (16976)<br>5 2 not 4 (127) | 103 selected from 202 hits | 27 |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 9 | 11.07.16 | SPP | (excluding children) | 2011–16 | 1 ((well being or wellbeing or (quality and life)) and (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games)).mp. [mp=abstract, title, publication type, heading word, accession number] (1036)]<br>2 limit 1 to yr="2011 -Current" (206)<br>3 (child* or adolesc* or teenage* or youth or young).mp. [mp=abstract, title, publication type, heading word, accession number] (160199)<br>4 limit 3 to yr="2011 -Current" (16976)<br>5 2 not 4 (127) | 127 all selected | 28 |
| 10 | 11.07.16 | SPP | Reviews or randomised trials | 2011–16 | 6 (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games).mp. [mp=abstract, title, publication type, heading word, accession number] (9304)<br>7 limit 6 to yr="2011 -Current" (871)<br>8 ((systematic adj review) or (rapid adj evidence adj assess*) or randimised or (scoping adj review) or (meta adj analyis) or (literature adj review)).mp. [mp=abstract, title, publication type, heading word, accession number] (4424)<br>9 limit 8 to yr="2011 -Current" (1279)<br>10 7 and 9 (49) | 45 selected from 49 hits | 12 |
| 11 | 11.07.16 | Web of science | Reviews or randomised trials | 2011–16 | As above<br><br>Social sciences, UK only | 168 hits all selected | 15 |
| 12 | 11.07.16 | Psychinfo | Reviews or randomised trials | 2011–16 | As above | 200 selected from 977 hits | 178 |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 13 | 12.07 | ASSIA | Individual development | 2011–16 | (“individual develop*” OR “personal develop*” OR employabil* OR resilien* OR character* OR neet* OR attainment OR teamwork OR skill* OR happiness OR leadership) AND (sport* OR “physical activit*” OR “physical exercise” OR recreati* OR games) AND peer(yes) AND stype.exact(“Scholarly Journals”) AND la.exact(“English”) AND pd(2011-2016) | 131 all selected | 40 |
| 14 | 12.07 | ASSIA | Community development | 2011–16 | ((((“community development” OR “social capital” OR belonging OR “social cohesion” OR “social impact”) AND ti(sport* OR “physical activit*” OR “physical exercise” OR recreati*) NOT (gambling OR betting OR tourism)) AND peer(yes)) AND stype.exact(“Scholarly Journals”)) AND la.exact(“English”) AND pd(2011-2016) | 24 selected from 30 hits | 2 |
| 15 | 12.07 | ASSIA | Wellbeing | 2011–16 | ((((“well being” OR wellbeing OR “quality and life” OR stress OR anxiety OR depression OR cognitive OR “self esteem” OR confidence) AND ti(sport* OR “physical activit*” OR “physical exercise”) NOT (afric* OR medic* OR game* OR drug* OR smok* OR alcohol* OR pol*)) AND peer(yes)) AND stype.exact(“Scholarly Journals”)) AND la.exact(“English”) AND pd(2011-2016) | 163 selected from 168 hits | 40 |
| 16 | 12.07 | SPP | Economic development | 2011–16 | 1 (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games).mp. [mp=abstract, title, publication type, heading word, accession number] (9304)<br>2 limit 1 to yr=”2011 -Current” (871)<br>3 ((community adj development) or (social adj capital) or (social adj cohesion) or belonging).mp. [mp=abstract, title, publication type, heading word, accession number] (7192)<br>4 limit 3 to yr=”2011 -Current” (696)<br>5 2 and 4 (24) | 57 selected from 130 hits | Not sifted (AG: I think you will have seen most of these references already. SPP is not very good at covering economic issues.) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | 6 ((economic adj development) or employment or jobs or skills or neets or (economic adj growth)).mp. [mp=abstract, title, publication type, heading word, accession number] (47830)<br>7 limit 6 to yr="2011 -Current" (4945)<br>8 2 and 7 (103)<br>9 (sport* or (physical and activit*) or fitness or physical exercise or recreati* or games).mp. [mp=abstract, title, publication type, heading word, accession number] (11020)<br>10 limit 9 to yr="2011 -Current" (1151)<br>11 7 and 10 (135)<br>12 (sport* or (physical and activit*) or (physical and exercise) or recreati* or games).mp. [mp=abstract, title, publication type, heading word, accession number] (10740)<br>13 limit 12 to yr="2011 -Current" (1120)<br>14 7 and 13 (130) | | |
| 17 | 12.07 | Econlit | Economic development | 2011–16 | (((ti(sport* OR "physical activit*" OR recreati*) AND (economics OR "economic development" OR employment OR jobs OR skills OR neets OR "economic growth") NOT (tourism OR afric* OR asia* OR Indonesia* OR south OR singapore)) AND peer(yes)) AND rtype.exact("Book" OR "Journal Article")) AND la.exact("English") AND pd(2011-2016) | 58 selected from 124 hits | 11 |
| 18 | 13.07 | Scopus | Economic development | 2011–16 | As above | 38 selected from 164 hits | 19 |
| 19 | 13.07 | SPP | Individual development<br><br>(NEETS) | 2011–16 | 1 (neet* and (sport* or (physical adj activit*) or (Physical adj exercise))).mp. [mp=abstract, title, publication type, heading word, accession number] (6)<br>2 limit 1 to yr="2006 -Current" (3) | 2 selected from 3 hits | 0 |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 20 | 13.07 | SPP | Individual development | 2011–2016 | 1 (((individual or personal) and develop*) or employabil* or resilien* or character* or neet* or attainment or teamwork or skill* or happiness or leadership).mp. [mp=abstract, title, publication type, heading word, accession number] (54884)<br>2 limit 1 to yr="2011 -Current" (8645)<br>3 (sport* or (physical adj activit*)).mp. [mp=abstract, title, publication type, heading word, accession number] (4882)<br>4 limit 3 to yr="2011 -Current" (477)<br>5 2 and 4 (89) | 89 all selected | 15 |
| 21 | 13.07 | IBBS | Economic development | 2011–16 | (((ti(sport* OR "physical activit*" OR recreati*) AND (economics OR "economic development" OR employment OR jobs OR skills OR neets OR "economic growth") NOT (tourism OR afric* OR asia* OR Indonesia* OR south OR singapore)) AND peer(yes)) AND rtype.exact("Book" OR "Journal Article")) AND la.exact("English") AND pd(2011-2016) | 96 selected from 218 hits | 14 |
| 22 | 13.07 | IBBS | Wellbeing | 2011–16 | ((sport* OR "physical activit*" OR "Physical exercise" OR fitness) AND ("well being" OR wellbeing OR "quality of Life")) AND peer(yes) | 128 from 152 hits | 20 |
| 23 | 13.07 | Econlit | Wellbeing | 2011–16 | (((sport* OR "physical activit*" OR "Physical exercise" OR fitness) AND ("well being" OR wellbeing OR "quality of Life")) AND peer(yes)) NOT (tourism AND peer(yes)) | 36 selected from 49 hits | 1 |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 24 | 13.07 | ERIC | Individual development | 2011–16 | ((((“individual develop*” OR “personal develop*” OR employabil* OR resilien* OR character OR neet* OR attainment OR teamwork OR skill* OR happiness OR leadership) AND ti(sport* OR “physical activit*” OR “physical exercise” OR recreati*) NOT (gambling OR betting OR tourism)) AND peer(yes)) AND stype.exact(“Scholarly Journals”)) AND la.exact(“English”) AND pd(2011-2016) | 187 from 230 hits | 30 |
| 25 | 13.07 | SPP | Community development | 2011–16 | 1 (sport* or (physical adj activit*) or fitness or (physical adj exercise) or recreati* or games).mp. [mp=abstract, title, publication type, heading word, accession number] (9304)<br>2 limit 1 to yr=”2011 -Current” (871)<br>3 ((community adj development) or (social adj capital) or (social adj cohesion) or belonging).mp. [mp=abstract, title, publication type, heading word, accession number] (7192)<br>4 limit 3 to yr=”2011 -Current” (696)<br>5 2 and 4 (24) | 24 all selected | 2 |
| 26 | 13.07 | Planex | Economic development | 2011–16 | (sport* or physical activit* or fitness or exercise or recreati*) and (business or economic* or export* or employment or “job creation”) | 58 selected from 128 hits | 9 |
| 27 | 13.07 | Web of Science | Wellbeing | 2011–16 | (well being or wellbeing or (quality and life or “quality of life”)) and (sport* or physical activit* or fitness or exercise or recreati*) | 148 selected from 198 hits | 13 |
| 28 | 13.07 | Web of Science | Community development | 2011–16 | ((communit* or “social capital” or belonging or “social cohesion”) and (sport* or “physical activit*” or fitness or recreati*)) not (common* or legacy or Olympic or tourism or event*) | 91 selected from 233 hits | 32 |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 29 | 13.07 | Web of Science | Individual development | 2011–16 | (sport* or physical activit* or fitness or exercise or recreati*) and (individual develop* or personal develop* or employabil* or resilien* or character* or attainment or teamwork or skill* or happiness or leadership or self esteem or confiden*) | 42 selected from 75 hits | 5 |
| 30 | 13.07 | Web of Science | NEETS | 2011–16 | (neet*) and (sport* or physical activit* or fitness or exercise or recreati*) | 3 selected from 5 hits | 0 |
| 31 | 13.07 | Web of Science | Economic development | 2011–16 | (economic and (develop* or growth) or employment or export* or neet*) and (sport* or physical activit* or fitness or exercise or recreati*) | 23 from 90 hits | 7 |
| 32 | 13.07 | Planex | Individual development | 2011–16 | (sport* or physical activit* or fitness or exercise or recreati*) and (individual develop* or personal develop* or employabil* or resilien* or character* or attainment or teamwork or skill* or happiness or leadership or self esteem or confiden*) | 100 from 191 hits | 38 |
| 33 | 10.08 | Web of Science | Physical wellbeing – medical conditions | 2011–16 | (sport* or "physical activit*" or fitness or exercise or recreati*) ***AND*** TOPIC: (Outcome* or intervention*) ***AND*** TOPIC: (public health or medic* or Diabetes or cancer* or dementia or strokes or heart disease or depression) ***AND*** TOPIC: ("systematic review" or "rapid evidence assess*" or randomised or "scoping review" or "meta analys*" or "literature review") ...More TITLE: (sport* or "physical activit*" or fitness or exercise or recreati*) ***AND*** TOPIC: (Outcome* or intervention*) ***AND*** TOPIC: (public health or medic* or Diabetes or cancer* or dementia or strokes orheart disease or depression) ***AND*** TOPIC: ("systematic review" or "rapid evidence assess*" or randomised or "scoping review" or "meta analys*" or "literature review") | 137 all selected | 43 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Refined by: WEB OF SCIENCE CATEGORIES: (SPORT SCIENCES ) AND DOCUMENT TYPES: ( ARTICLE ) AND COUNTRIES/TERRITORIES: ( USA OR CANADA OR AUSTRALIA OR ENGLAND OR IRELAND OR SCOTLAND OR NORTH IRELAND )<br><br>Timespan: 2011-2016. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI. | | |
| 34 | 13.08 | Sport<br><br>Discus | Wellbeing | 2011–16 | | 50 selected from 71 hits | 25 |
| 35 | 13.08 | Sport<br><br>Discus | Individual development | 2011–16 | (sport* or physical activit* or fitness or exercise or recreati*) and (individual develop* or personal develop* or employabil* or resilien* or character* or attainment or teamwork or skill* or happiness or leadership or self esteem or confiden*) | 46 selected from 103 hits | 6 |
| 36 | 13.08 | Sport<br><br>Discus | Community development | 2011–16 | ((communit* or “social capital” or belonging or “social cohesion”) and (sport* or “physical activit*” or fitness or recreati*)) not (common* or legacy or Olympic or tourism or event*) | 24 selected from 51 hits | 6 |
| 37 | 13.08 | ASSIA | Sport and happiness | 2011–16 | (sport* AND happiness) AND peer(yes)<br><br>ti(sport* OR “physical activit”) AND (“economic development” OR “economic value” OR “economic change” OR employment OR “job creation” OR exports) AND peer(yes) AND la.exact(“English”) AND at.exact(“Article” OR “Bibliography”) AND stype.exact(“Scholarly Journals” OR “Books”) AND pd(2011-2016) | 11 hits all selected | 3 |
| 38 | 13.08 | Sport<br><br>Discus | Economic development | 2011–16 | (economic and (develop* or growth) or employment or export* or neet*) and (sport* or physical activit* or fitness or exercise or recreati*) | 4 selected from 35 hits | 2 |

| | Date of search | Name of database | Search focus | Date range | Search terms and strategy used | Results and no. selected by AG | Potentially relevant (first sift) |
|---|---|---|---|---|---|---|---|
| 39 | 13.08 | PAIS | Economic development | 2011–16 | (sport* OR "physical activit") AND ("economic development" OR "economic value" OR "economic change" OR employment OR "job creation" OR exports) AND peer(yes) AND la.exact("English") AND at.exact("Article" OR "Bibliography") AND stype.exact("Scholarly Journals" OR "Books") AND pd(2011-2016) | 3 selected from 6 hits | 0 |
| 40 | 13.08 | Sport Discus | Health | 2011–16 | (sport* or physical activit* or fitness or exercise or recreati*) and (health or cancer or diabetes or "heart disease" or depression or dementia or strokes) | 176 selected from 315 hits | 45 |
| 41 | 13.08 | Sport Discus | Happiness | 2011–16 | (happiness or anxiety or stress or mood*) and (sport* or physical activit* or fitness or exercise or recreati*) | 4 hits all selected | 1 |
| 42 | 13.08 | IBSS | Happiness | 2011–16 | (happiness or anxiety or stress or mood*) and (sport* or physical activit* or fitness or exercise or recreati*) | 4 selected from 35 hits | 1 |
| 43 | 15.08 | Planex | Economic development | 2011–16 | (sport* or physical activit* or fitness or exercise or recreati*) and (business or economic* or export* or employment or "job creation") | 50 selected from 258 hits | 6 |

# APPENDIX 4: SELECTION CRITERIA

## 1. RELEVANCE

- Items must be relevant to one or more of the five outcome areas.
- Items that cover more than one outcome area, or more than one subdomain within an outcome area, prioritised.
- Items relevant to outcome areas prioritised over those which focus only on 'what works' (evidence of 'what works' will be identified within selected items).

## 2. STUDY DESIGN/METHODOLOGY

- Systematic reviews and meta-analyses prioritised (taking into account their coverage, rigour and the quality of material synthesised).
- To fill gaps in outcome areas or subdomains, or subgroups as noted below, high quality evidence of other types selected as follows:
  - Preferred: RCTs, cohort/comparative studies, case control studies.
  - Less preferred: qualitative research, case studies, narrative reviews.
  - Excluded: items with no evidence base.
- See table at the end of appendix 4 for a more detailed list of study classifications.

## 3. SOURCE

- Items in a peer-reviewed journal prioritised, followed by government reports.

## 4. REACH

- Subgroup: items which cover subgroups of particular interest prioritised – women, BME, disabled, lower socio-economic groups.
- Scale: consider whether the study is about one sport (or sport and physical activity in general) and whether it is about a single/local programme or multiple/national.
- Sample size: large sample sizes preferred.

## 5. GEOGRAPHY

- UK items prioritised.
- Non UK items included where they a) cover outcome areas or subdomains where UK evidence is lacking and b) come from contexts that are comparable to the UK.

# 6. QUALITY

- Items should include discussion of the strengths and limitations to the evidence presented.
- If items do not discuss their strengths and limitations, or if they identify limitations but nonetheless focus on an area of interest to the review that is otherwise not covered in the evidence, they may be included, with clear caveats.

### Classification of studies[30]

| Rank | Methodology | Example/description |
|---|---|---|
| A | Systematic reviews/ meta-analyses | Reviews of data that use transparent and rigorous methodology. Meta-analysis includes statistical analysis of results. |
| B | Randomised Controlled Trials (RCTs) | Clinical trials with clear methodology. They use randomised participants and control groups. |
| C | Cohort study | A form of longitudinal study. Follows a group of people with a common or defined characteristic. Can be prospective or retrospective. |
| D | Time-series study | A form of longitudinal study (not panel). Revisits a cross-sectional study or similar after a period of time has elapsed and compares the data. |
| E | Case control | Studies that do not use randomised participants but compare two existing groups (one is a control group). |
| F | Cross-sectional study | Provides data on entire populations based on a sample. Collects data at a defined time. |
| G | Case study/programme/ qualitative evaluations | Intensive analysis of an individual or group, or intervention. No case control. Descriptive or explanatory. |
| H | Economic evaluations | Employ economic analysis methods to quantify the economic value of an intervention or activity. |
| I | Narrative reviews | Review of literature that does not follow a clearly defined methodology. |
| J | Policy brief<br><br>Expert opinion/ Scientific statement | Including opinions from well-respected authorities, descriptive statistics, guidelines based on evidence. |

30 Table taken from A Review of the Social Impacts of Engagement with Culture and Sport, Culture and Sport Evidence Programme (CASE) (2015)

# APPENDIX 5: IMAGE CREDITS

## FRONT PAGE DIAGRAM

- Basketball: Created by Ainsley Wagoner from Noun Project
- Stadium: Created by Pipe Rosas Licht from Noun Project
- User/volunteer: Created by Wilson Joseph from Noun Project
- Mental health: Created by Gemma Garner from Noun Project
- Happy man: Created by Anna Vital from Noun Project
- User/personal development: Created by Wilson Joseph from Noun Project
- Team/community: Created by Shane Miller from Noun Project
- Statistics/economy: Created by Rémy Médard from Noun Project

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May 2017