

**CONFIDENTIAL**

---

*Measuring the Social and Economic Value of Sport in Wales*

**Report 1: Social Return on Investment of Sport in Wales  
2016/17**

---

**September 2018**

**Submitted to:**

Jonathan Radcliffe  
Sport Wales

**Submitted by:**

Dr Larissa Davies  
Sport Industry Research Centre  
Sheffield Hallam University  
Sheffield  
S10 2BP

Tel: +44 (0)114 225 2487

Email: [l.e.davies@shu.ac.uk](mailto:l.e.davies@shu.ac.uk)

This report has been prepared by the Sport Industry Research Centre (SIRC) at Sheffield Hallam University. The report has been commissioned by, but does not necessarily represent the views of Sport Wales. The views expressed within this report represent those of the authors.

Dr Larissa Davies  
Dr Girish Ramchandani  
Elizabeth Christy  
Professor Peter Taylor

## Contents

<b>EXECUTIVE SUMMARY</b> .....	<b>i</b>
<b>1. INTRODUCTION</b> .....	<b>1</b>
1.1 The policy context in Wales .....	1
1.2 The social impact of sport.....	2
1.3 Defining 'social impact' .....	3
1.4 Report structure.....	4
<b>2. METHODOLOGY</b> .....	<b>5</b>
2.1 Stages of a SROI .....	5
2.2 Assumptions.....	6
2.3 Scope of the project.....	6
<b>3. SOCIAL RETURN ON INVESTMENT</b> .....	<b>8</b>
3.1 Identifying the stakeholders .....	8
3.2 Mapping outcomes .....	8
3.2.1 The Impact Map .....	8
3.2.2 Identifying and valuing inputs.....	10
3.2.3 Clarifying outputs.....	11
3.3 Measuring and valuing outcomes.....	11
3.3.1 Evidencing outcomes .....	11
3.3.2 Excluded outcomes .....	14
3.3.3 Valuing outcomes .....	14
3.4 Establishing impact .....	17
3.5 SROI calculation .....	18
3.5.1 SROI ratio .....	18
3.5.2 Sensitivity analysis .....	19
<b>4. CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>20</b>
<b>4.1 Conclusions</b> .....	<b>20</b>
<b>4.2 Recommendations</b> .....	<b>21</b>
<b>5. REFERENCES</b> .....	<b>22</b>
<b>6. APPENDICES</b> .....	<b>24</b>
Appendix 1: Summary of literature .....	24
1.1. Children .....	24
1.2. Mental health (adults) .....	33
1.3. Injuries (adults) .....	36
1.4. Social Capital .....	37
Appendix 2: Duration, drop-off, discounting, deadweight, displacement, attribution .....	38

## List of Tables

Table 3.2:	Summary of the inputs for Wales	10
Table 3.3:	Selected outcomes included in the SROI	13
Table 3.4:	Health valuation - summary	15
Table 3.5:	Other outcomes valuation - summary	17
Table 3.6:	Summary of the SROI calculation for Wales	18
Table 3.7:	Sensitivity analysis	19
Table 4.1:	The well-being goals and the social value of sport	20

## List of Figures

Figure 1.1:	The well-being goals for Wales	2
Figure 2.1:	Stages of a SROI model	6
Figure 3.1:	Key stakeholder groups in Wales	8
Figure 3.2:	Overview of the impact map for Wales	9

## List of Abbreviations

CHD	Coronary Heart Disease
DCMS	Department for Digital, Culture, Media and Sport
GP	General Practitioner
GVA	Gross Value Added
HE	Higher Education
NPV	Net Present Value
SIRC	Sport Industry Research Centre
SROI	Social Return on Investment

## Glossary

Human capital:	The quantification of the economic value of an individual's skill set.
Social capital:	Social networks based on social and group norms which enable people to trust and cooperate with each other and via which individuals or groups obtain certain types of advantage (Coalter, 2007).
Subjective well-being:	Life satisfaction pertaining to the individual.

## EXECUTIVE SUMMARY

### *Introduction*

This report presents a Social Return on Investment (SROI) analysis of sport in Wales. It was commissioned by Sport Wales in January 2018 and conducted by the Sport Industry Research Centre (SIRC) at Sheffield Hallam University. The research forms part of a wider project on measuring the social and economic value of sport in Wales. The second element of the research measures the economic importance of sport in Wales. Measuring the Social Return on Investment (SROI) and economic value of sport will help Sport Wales to demonstrate the contribution of sport to the well-being goals for Wales and articulate to the Welsh Government and other stakeholders, the contribution sport makes to society.

**This research aims to measure the social impact of sport in Wales using a Social Return on Investment (SROI) framework.**

The research measures the value of participating and volunteering in sport but excludes watching sport as there is limited evidence to suggest that this form of engagement generates social outcomes.

### *Methodology*

SROI is a framework for understanding and measuring the non-market economic, social and environmental value created by an activity, organisation or intervention. It is increasingly being used across a wide range of policy areas, especially by public agencies and charities, to measure social value and to justify public investment. This research is the first time a SROI framework has been used to measure the wider social contribution of sport in Wales.

The Wales SROI model measures the social value of sport in Wales and the cost (inputs) of providing opportunities for engagement in sport. It expresses the total value of the social outcomes as a proportion of inputs. The Wales SROI model estimates the value of the following outcomes:

- Health (reduced risk of coronary heart disease and stroke; breast cancer; colon cancer; Type 2 diabetes; dementia, clinical depression and improved good health for participants);
- Subjective well-being (improved subjective well-being for participants and volunteers);
- Social capital (improved social capital for communities);
- Education (improved educational attainment and enhanced human capital);
- Crime (reduced criminal incidences)
- Non-market benefits acquired by sports organisations utilising volunteers

## *Key Findings*

The Wales SROI model, which measures the SROI for sport in 2016/17, reveals that £3,428m of social value was generated from £1,191m of inputs, giving a SROI value of 2.88. This means that for every £1 invested in sport in Wales (financial and non-financial), £2.88 worth of social impact was created for individuals and society in 2016/17. The largest amount of social value (61%) was generated through subjective well-being (£2,076m). Considerable social value was also created by social capital (£651.47m; 19% of the total), health (£295.17m; 8.6%) and in the form of non-market benefits to sports organisations utilising volunteers (£311.76m; 9%).

As with previous SROI sport studies, the estimates presented in the Wales SROI model are conservative. We have only included the outcomes for which there is strong evidence between social impact and sport participation, and there is data available to enable the valuation of these outcomes. On this basis, we have excluded several health, crime and education outcomes (positive and negative) from this study. As such the findings of this research are likely to underestimate the true social value of sport in Wales.

## *Recommendations*

The findings of this report provide clear evidence that sport contributes social value to society across a wide range of outcomes, and that the benefits to society are greater than the costs. It also provides evidence that sport contributes to the well-being goals for Wales. These are powerful messages and we recommend that they are shared with Sport Wales' stakeholders, including the Welsh Government, to demonstrate and broaden understanding of the contribution of sport to society. Social value in sport is driven by engagement, so we recommend continued investment in strategies to enhance participation and volunteering. Finally, we recommend that as with studies on the economic importance of sport in Wales, the SROI analysis for sport is repeated periodically in the future to demonstrate the social impact of sport over a longer period of time.

# Social Return On Investment of Sport in Wales - 2016/17

**INPUTS**

**£1,191 million**



**OUTCOMES**

**£3,428 million**

**Health**

Reduced CHD/Stroke, Type 2 Diabetes, Breast Cancer, Colon Cancer, Dementia, Depression and improved good health

**£295.17m**



**Subjective well-being**

Improved life satisfaction

**£2,076m**



**Social capital**

Higher social networks, trust & reciprocity

**£651.47m**



**Crime**

Reduced criminal incidences

**£2.17m**



**Education**

Improved educational attainment and enhanced human capital

**£91.15m**



**Other**

Benefits for sports organisations utilising volunteers

**£311.76m**



**SROI =**

**2.88**



For every £1 spent on sport in Wales, £2.88 worth of social impacts are generated



## 1. INTRODUCTION

This report presents a Social Return on Investment (SROI) analysis of sport in Wales. The research was commissioned by Sport Wales in January 2018 and conducted by the Sport Industry Research Centre (SIRC) at Sheffield Hallam University. The research forms part of a wider project on measuring the social and economic value of sport in Wales. The other element of the research, detailed in Report 2, measures the economic importance of sport in Wales.

SROI is a framework for understanding and measuring the non-market economic, social and environmental value created by an activity, organisation or intervention. It is increasingly being used across a wide range of policy areas, especially by public agencies and charities, to measure social value and to justify public investment. In 2015, SIRC developed a national model to estimate Social Return on Investment in sport in England<sup>1</sup>. The SROI model for Wales builds on this innovative work to measure for the first time, the non-market social impact of sport in Wales.

**The aim of this research is to measure the social impact of sport in Wales using a Social Return on Investment (SROI) framework.**

The research measures the social value of participating and volunteering in sport. It explicitly excludes watching sports events as there is limited evidence to suggest that this form of engagement in sport generates social outcomes.

### 1.1 The policy context in Wales

Sport Wales is the national organisation responsible for developing and promoting sport and active lifestyles. It is a Welsh Government sponsored public body and its vision is to 'Unite a proud sporting nation, where every child is hooked on sport for life and where Wales is a nation of champions'<sup>2</sup>. Welsh government funding for sport is channeled through Sport Wales. Within the Welsh Government, the sport portfolio is split across two Cabinet secretaries and a Minister. Elite sport and major events, including infrastructure, sit within the wider economy and tourism portfolio, in recognition of sport as a contributor to economic development in Wales. Community sport sits within the broader health portfolio recognising the role sport can play in relation to better physical and mental health and well-being<sup>3</sup>.

---

<sup>1</sup> SIRC (2016). *Social Return on investment in Sport: A Participation wide model for England: Summary Report*. [online]. <http://www4.shu.ac.uk/assets/pdf/research/sirc/Final-SIRC-SROI-England-Web-report.pdf>

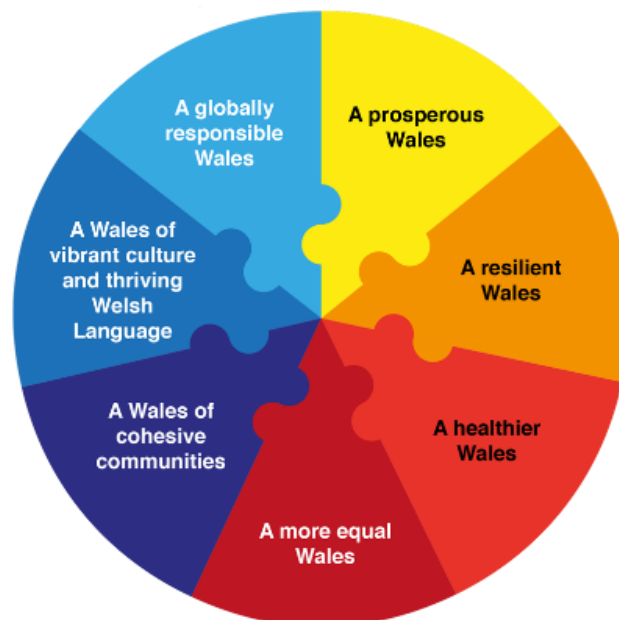
<sup>2</sup> <http://gov.wales/topics/culture-tourism-sport/sportandactiverекреation/sport-wales/?lang=en>

<sup>3</sup> Sport Wales; This is Sport Wales, Annual Accounts; 2016/17.

The Well-being of Future Generations (Wales) Act<sup>4</sup> 2015 is legislation requiring public bodies to put sustainable thinking and partnership working at the heart of their working, to improve the social, economic, environmental and cultural well-being of Wales. The Act requires public bodies, including Sport Wales, to work towards seven well-being goals, as illustrated in Figure 1.1.

Measuring the Social Return on Investment (SROI) and economic value of sport will enable Sport Wales to demonstrate the contribution of sport to the well-being goals and articulate to the Welsh Government, the contribution sport makes to both portfolios. The economic evaluation will enable Sport Wales to evidence its contribution to 'A prosperous Wales. The SROI will demonstrate the value created through sport in relation to 'A healthier Wales'; 'A Wales of Vibrant culture and thriving Welsh Language'; and 'A Wales of cohesive communities'.

**Figure 1.1: The well-being goals for Wales**



Source: WCVA<sup>5</sup>

## 1.2 The social impact of sport

Sport and exercise is widely perceived to generate social impacts. A review of literature carried out for the Department for Culture, Media and Sport (DCMS)<sup>6</sup> by SIRC and others, focused on four main types of social impact relating to improved health, reduced crime, increased social capital and improved educational attainment. It also focused on the impact

<sup>4</sup> <https://futuregenerations.wales/about-us/future-generations-act/>

<sup>5</sup> [https://www.wcva.org.uk/what-we-do/the-future-generations-\(wales\)-act-all-you-need-to-know](https://www.wcva.org.uk/what-we-do/the-future-generations-(wales)-act-all-you-need-to-know)

<sup>6</sup> DCMS. (2015). *A review of the social impacts of culture and sport*. [online]. <https://www.gov.uk/government/publications/a-review-of-the-social-impacts-of-culture-and-sport>

of sport participation and volunteering on personal subjective well-being i.e. life satisfaction or happiness for individuals.

The DCMS report found that the most convincing evidence of social impact from sport and exercise is in relation to health. The report found that sport and exercise prevent or reduce physical and mental health problems and save on health care costs. Furthermore, it found evidence that sport participation improves pro-social behaviour and reduces crime and anti-social behaviour, particularly for young men; promotes bonding social capital and collective action, particularly volunteering; and has a positive effect on educational outcomes, including psychological and cognitive benefits and educational attainment. There is also evidence of a positive relationship between sport participation and subjective well-being, otherwise defined as life satisfaction/happiness for individuals.

The Wales SROI model estimates the value of those social impacts for which there is strong empirical evidence. In most cases, the evidence used to support the inclusion of these impacts is from studies that gathered data from thousands of people at the population level.

### **1.3 Defining 'social impact'**

This study adopts economics definitions of social benefits and costs, which taken together are termed social impacts. We include relevant benefits and costs which affect private individuals, because they are part of society and we include benefits and costs which affect someone other than the direct beneficiary, which typically include:

- changes in health care costs, derived from health changes of individuals - any savings in health and social care costs benefit others in society;
- changes in criminal justice system costs, derived from changes in crime and anti-social behaviour and in pro-social behaviour and citizenship - any savings in criminal justice costs benefit others in society;
- the value of changes in human capital and productivity for society, derived from education changes for individuals - the whole economy benefits from improvement in education outcomes;
- the value of changes in social capital, derived from enhanced social networks, trust and reciprocity brought about by sport participation;
- the value of changes in volunteering which add non-market value to the offers made by sports organisations that utilise them (mainly clubs).

In addition, we include subjective well-being from participation and volunteering in sport as part of social impact. Subjective well-being is defined as life satisfaction pertaining to the individual.

## **1.4 Report structure**

This report is structured as follows. Section 2 outlines the SROI methodology; section 3 presents the detailed calculations and findings of the Wales SROI model and section 4 presents the conclusions and recommendations for maximising social value from sport in Wales.

## 2. METHODOLOGY

A SROI framework can be used retrospectively to measure the activities of an organisation that have already occurred (evaluative) or it can be used prospectively to forecast the value that will be generated if an organisation or intervention meets its intended outcomes. The research presented in this report is evaluative i.e. it measures the impact of sport participation in Wales that has already taken place. The year 2016/17 is the reference year.

The Wales SROI model estimates the social value of improved health, enhanced subjective well-being, reduced crime, improved education and enhanced social capital arising from sport in Wales. It also calculates the costs (inputs) of providing sports opportunities in Wales. The model expresses the social value of sport in Wales in relation to this investment. For example, for every £1 of investment in Wales, a value of £y is generated.

### 2.1 Stages of a SROI

The conduct of a SROI study requires progression through six key stages. These are outlined below and summarised in Figure 2.1:

1. **Identify key stakeholders** to include and which stakeholders to exclude.
2. **Map outcomes in logic model.** Identify relevant inputs and decide which are, in principle, *material* outputs and outcomes. Develop an impact map or theory of change to show the relationship between inputs, outputs and outcomes.
3. **Measure and value outcomes.** Identify indicators, through literature, secondary data, and financial proxies. Decide which inputs, outputs and outcomes can be included because of sufficient empirical evidence, and which must be excluded on the grounds of insufficient evidence. Ensure that there is no double-counting of either inputs or outputs.
4. **Calculate impact.** Deduct deadweight (what would have happened anyway) and displacement (where the activity has simply replaced another). Identify attribution (the percentage of outcomes attributable to this activity, rather than other activities). Calculate the duration of the impact and the drop-off in outcomes over time.
5. **SROI.** Calculate the SROI ratio (divide the total social value of sport participation by the total costs/investment). Test the sensitivity of the estimated SROI to variations in the outcome measures, financial proxies, and other key variables.
6. **Report and embed.** Report to stakeholders; identify gaps in evidence base; make recommendations; disseminate the results.

**Figure 2.1: Stages of a SROI model**



## 2.2 Assumptions

Every effort has been made to construct the Wales SROI model on empirical evidence. A lack of appropriate evidence is one of the main reasons for excluding particular outcomes in a SROI analysis. However, it is also common within SROI studies to make reasonable, conservative assumptions about key elements for which specific empirical evidence does not exist - to enable an estimate to be made rather than for the outcome to be excluded.

The key assumptions necessary to conduct the Wales SROI are as follows:

- If evidence exists for a different context e.g. evidence is from a different country / city, and the socio-economic context is similar, it is assumed that the effect is also relevant in a UK / Welsh context.
- In the absence of Welsh data, if evidence exists for a different geographical scale e.g. England or the UK, it is assumed that the effect in Wales is the same as the national effect e.g. prevalence rate of breast cancer / cost of treating breast cancer.
- If evidence varies for the same effect, e.g. the impact of sport on reducing risk of breast cancer (10%-30%), an informed assumption of the average effect is taken (e.g. 20%).
- Evidence on intensity and frequency of participation is variable, although much literature argues that a threshold of at least once per week of moderate or vigorous exercise is required for social benefits to be realised. There is no data for intensity of sport participation in Wales, therefore we have assumed that the participation threshold of once per week is a suitable proxy measure for this.
- We have assumed that one year's figures are a reasonable conflation of the more dynamic process of continued investment and participation in sport, resulting in longer term benefit generation.

Necessary assumptions should be based on the most appropriate evidence, together with expert judgement. Following the ethos of SROI, they are conservative and transparent, such that they are open to challenge so that they are either improved or displaced in time by more appropriate empirical evidence.

## 2.3 Scope of the project

The parameters of the research are as follows:

- The year of the study is 2016/17.
- The target population is Wales; children aged 10-15 and adults aged 16+.

The year of study represents that for which the latest data is available. The age parameters are the same as those adopted in the England SROI model. In the case of children, empirical evidence for the social impact of sport participation is only available for children aged 10+ years for the education and crime outcomes. A summary of the literature on the social impact of children is more fully documented in Appendix 1.

For the purposes of this research, we are guided by the definition of sport adopted by Sport Wales<sup>7</sup>, which positions sport in its broadest sense; taking the Council of Europe's Sports Charter (1992) definition<sup>8</sup>:

“...all forms of physical activity which, through casual or organised participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels.”

We include physical activities considered to be active recreation, such as fitness activities, dance and recreational walking, but we exclude household activities not related to formal sport and exercise, such as gardening.

We only include sport and physical recreation which meets the threshold of at least once per week. This threshold is based on those levels reported in the wider literature and empirical evidence.

---

<sup>7</sup> [http://www.sport.wales/media/506916/sport\\_wales\\_english\\_vision\\_doc\\_reprint\\_all\\_v3.pdf](http://www.sport.wales/media/506916/sport_wales_english_vision_doc_reprint_all_v3.pdf)

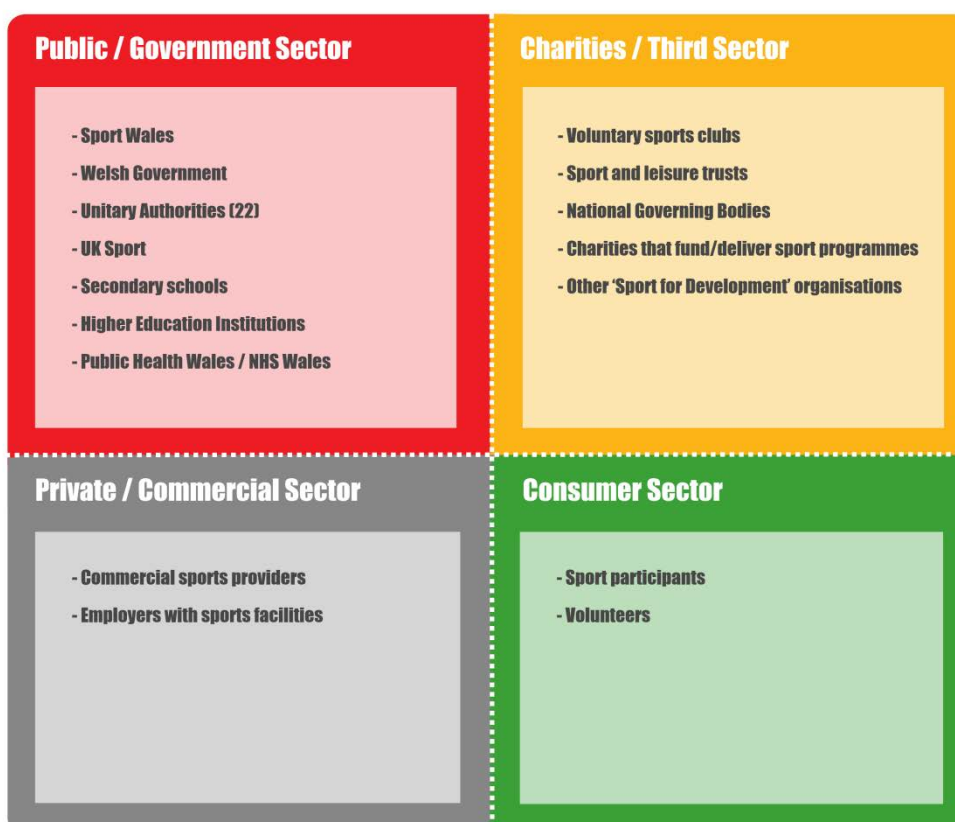
<sup>8</sup> [https://search.coe.int/cm/Pages/result\\_details.aspx?ObjectID=09000016804c9dbb](https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016804c9dbb)

### 3. SOCIAL RETURN ON INVESTMENT

#### 3.1 Identifying the stakeholders

After establishing the scope of the project, the first stage of a SROI analysis is to identify the stakeholders to be included. Stakeholders are defined as people or organisations that experience change or affect the activity (positive or negative). Figure 3.1 identifies the major groups of stakeholders and organisations for sport in Wales.

**Figure 3.1: Key stakeholder groups in Wales**



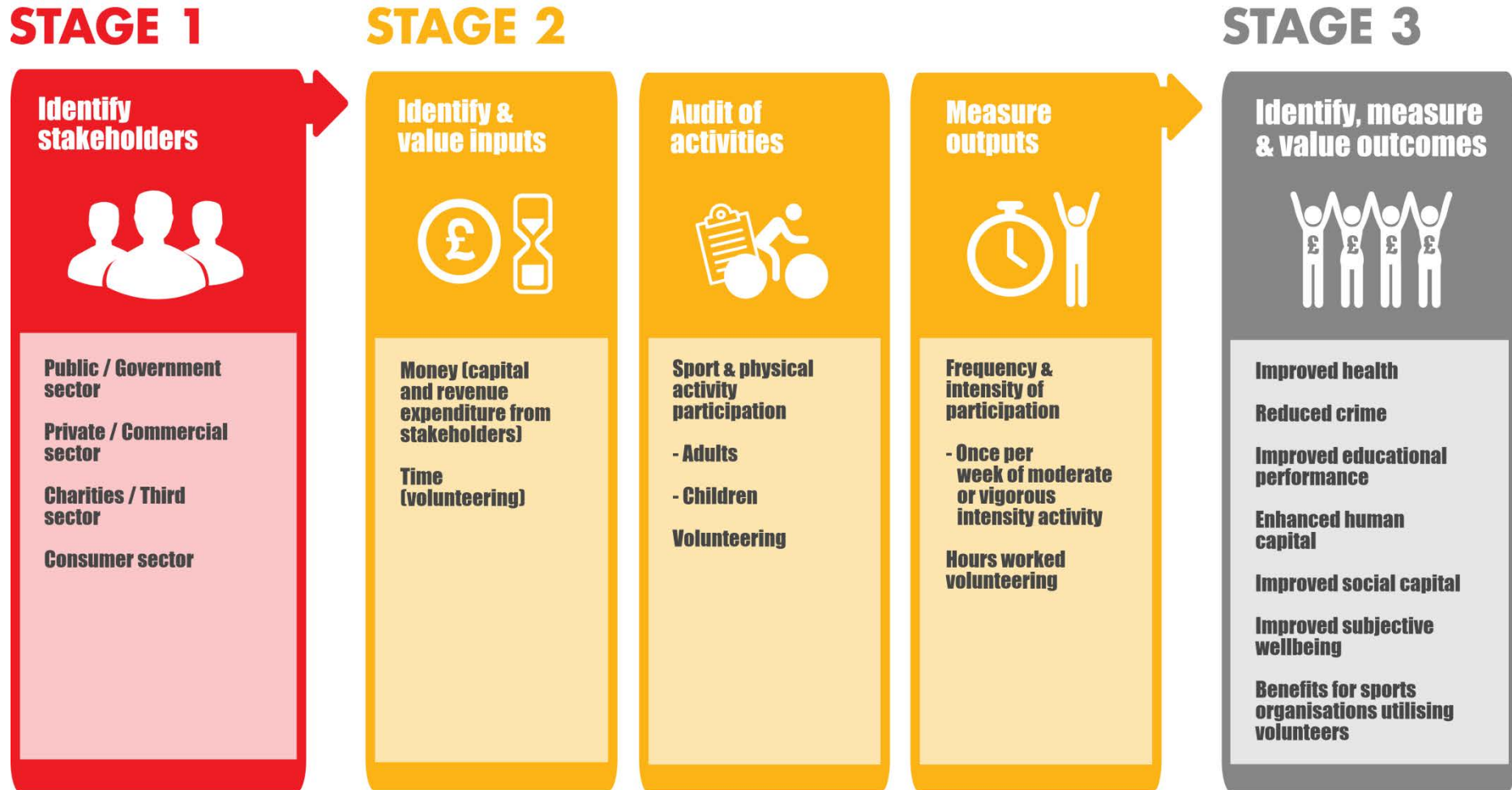
#### 3.2 Mapping outcomes

##### 3.2.1 The Impact Map

The Impact Map is central to the SROI analysis. It is the story of how an intervention or policy (in this case promoting sport participation and volunteering) makes a difference. It details how inputs, used to resource and deliver activities (measured as outputs), result in outcomes for stakeholders. The Impact Map is also known as a 'theory of change' or logic model and is the framework used to build the SROI model. Figure 3.2 gives an overview of



Figure 3.2: Overview of the impact map for Wales



the Impact Map for Wales. The stages outlined in the Impact Map correspond to Stages 1-3 of a SROI framework, as illustrated in Figure 2.1.

### 3.2.2 Identifying and valuing inputs

Inputs are those things that stakeholders contribute in order to make activities possible.

The inputs to sport in Wales are primarily money (financial) and time (non-financial). Table 3.2 summarises the inputs for Wales.

While the inputs were relatively straightforward to identify, care was taken to ensure that there was no double counting between organisations, for example Welsh Government and Sport Wales. A number of stakeholders identified in Figure 3.1 are not included in Table 3.2 because their inputs are captured elsewhere. For example, voluntary clubs are not included because they do not provide any inputs other than those accounted for elsewhere (e.g. consumer spending; volunteer time). Likewise, the commercial sector is not included as all the inputs provided by this sector are counted in consumer expenditure on sport.

**Table 3.2: Summary of the inputs for Wales**

Stakeholder	Inputs	Value (£m)
<b>Public/Government Sector</b>		<b>242.72</b>
Sport Wales	Exchequer and lottery spend	18.26
Unitary authorities	Sport-related revenue and capital spend	124.01
Secondary schools & HE institutions	Expenditure on sports provision	96.02
UK Sport	Lottery and Exchequer Funding	4.43
<b>Consumer Sector</b>		<b>636.62</b>
Sport participants	Activity charges/fees	175.52
	Equipment costs	184.47
	Sport clothing & footwear	188.74
	Travel and other costs	87.89
<b>Non-financial inputs</b>		<b>311.76</b>
Sport volunteers	Time	311.76
<b>Total</b>		<b>1,191.10</b>

The financial inputs linked to funding agencies and sport delivery organisations were taken from their financial accounts (Sport Wales), official Welsh Government statistics<sup>9, 10</sup>, and in some cases (e.g. for HE institutions) estimated based on the national SROI model for sport in England. Consumer spending on participation was taken from the economic importance of sport model for Wales. The non-financial input of volunteer time was valued using average hourly earnings.

<sup>9</sup> <https://statswales.gov.wales/Catalogue/Local-Government/Finance/Revenue/Outturn/revenueoutturnexpendituresummary-by-service>

<sup>10</sup> <https://statswales.gov.wales/Catalogue/Local-Government/Finance/Capital/Outturn/capitaloutturnexpenditure-by-service>

### 3.2.3 Clarifying outputs

Outputs are a quantitative summary of an activity. They are essentially the metric or measure which drives the calculation of value in a SROI for sport. There are two types of outputs for Wales. Firstly, sport participation and secondly, sport volunteering.

The source of participation data for adults was the Active Adults Survey 2016/17. The source of participation data for children was the School Sport Survey 2015. For both adults and children, the indicator used was participation in sport and physical recreation at least once per week.

The other main output is sport volunteering. Volunteer time is both an input and an output/outcome. It is an in-kind contribution that has to be valued as an input. However, volunteering also contributes to individual well-being of volunteers and value to the sports organisations that benefit, so it has an equivalent outcome value. The volunteering data was also acquired from the Active Adults Survey 2016/17.

## 3.3 Measuring and valuing outcomes

SROI is an outcomes-based measurement tool, as measuring outcomes is the only way to be sure that changes for stakeholders are taking place. This research requires the identification, measurement and valuation of outcomes that have resulted from investing in sport participation and volunteering.

### 3.3.1 Evidencing outcomes

The outcomes included in this study were identified using various sources including the systematic review of literature for the DCMS<sup>11</sup>, the England SROI model<sup>12</sup> and other SROI studies carried out by SIRC. In addition, for this research we carried out a search for recent evidence on mental health, child participation and sports injuries.

Previous SROI studies have identified 11 outcomes as having a strong relationship with sport participation as follows:

- *Health* (reduced risk of: CHD and stroke, breast cancer, colon cancer, Type 2 diabetes, dementia and improved general good health (reduced GP visits) for adults 16+);
- *Subjective well-being* (improved life satisfaction for participants and volunteers aged 16+);
- *Education* (improved educational attainment; enhanced human capital (improved starting salary for graduates));
- *Crime* (reduced criminal incidences for males aged 10-24);

---

<sup>11</sup> DCMS. (2015). *A review of the social impacts of culture and sport*. [online].

<https://www.gov.uk/government/publications/a-review-of-the-social-impacts-of-culture-and-sport>

<sup>12</sup> SIRC. (2016). *Social Return on investment in Sport: A Participation wide model for England: Summary Report*. [online]. <http://www4.shu.ac.uk/assets/pdf/research/sirc/Final-SIRC-SROI-England-Web-report.pdf>

- *Non-market value for sports organisations utilising volunteers* (Previously described as increased social capital generated *by* volunteers *for* the organisation).

For the Wales SROI, we also identified evidence enabling the inclusion of a further three outcomes:

- Reduced clinical depression;
- Reduced use of mental health/psychotherapy services;
- Enhanced social capital to communities.

The inclusion of two mental health measures is an important addition to the Wales SROI model, which was missing from previous sport SROI models.

A further significant step forward in the Wales study is the inclusion of social capital based on recent research published in Australia (Gratton *et al.* 2018). This work estimates the differences between sport participants and non-participants in feelings of social networks, trust and reciprocity. It also values these differences. See Appendix 1 for further details.

Unfortunately, it was not possible to include any further outcomes relating to child participation (aged 5+) beyond what was included in previous studies. Although a range of evidence was identified covering three areas: mental health, sports injuries and academic achievement, it was not considered strong enough to warrant the inclusion of these outcomes. Even for mental health, the strongest of the three areas examined, despite evidence of a positive effect, the consensus of experts was that the evidence remains weak and inconclusive. A summary of the literature reviewed for this research is also presented in Appendix 1.

Table 3.3 summarises the social outcomes included in the Wales SROI, together with the assumptions underpinning the relationship between each outcome and sport participation. For reporting purposes, we have combined reduced GP visits and reduced psychotherapy usage associated with self-reported good health into one variable (good health).

For the health outcomes, where the literature strongly suggests that sport and physical activity reduces risk across a range of values, we estimated an 'average effect'. For example, in the case of CHD and stroke, various studies suggested sport and physical activity reduced risk between 11%-52%; therefore, we assumed an average effect of 30%. However, in the areas of crime and education where the evidence is less robust, a different approach was required. Because the subjects and contexts for these studies vary so much, it is not possible to arrive at an appropriate 'average effect'. Instead, we have taken a cautious but generalised assumption of a 1% improvement in crime reduction and education attainment resulting from sport participation. Where assumptions have been made using a range of

**Table 3.3: Selected outcomes included in the SROI**

Area	Outcome	Relationship/assumption
<b>Health</b>	Coronary heart disease (CHD) and stroke	Participation in sport and exercise at moderate intensity in adults reduces risk of CHD and stroke in active men and women by an average of <b>30%</b> (range 11%-52%)
	Type 2 diabetes	Participation in sport and exercise at moderate intensity in adults reduces risk of Type 2 diabetes by <b>10%</b>
	Breast cancer	Participation in sport and exercise at moderate intensity reduces risk of breast cancer in active women by <b>20%</b> (range 10%-30%)
	Colon cancer	Participation in sport and exercise at moderate intensity in adults reduces risk of developing colon cancer by <b>24%</b>
	Dementia <sup>13</sup>	Participation in sport and exercise at moderate intensity in adults reduces risk of developing dementia by <b>30%</b> (range 21%-52%)
	Clinical depression	Participation in physical activity reduces the risk of clinical depression by <b>21%</b> (range 12% - 30%)
	Good health	Sport participants are <b>14.1%</b> more likely to (self) report good health than non-participant which results in a) reduced GP visits and b) reduced psychotherapy service usage <sup>14</sup>
<b>Subjective Well-being</b>	Subjective well-being	Sport participation is found to be associated with improved subjective well-being <sup>15</sup>
		Volunteering in sport is found to be associated with improved subjective well-being and greater life satisfaction <sup>16,17</sup>
<b>Social Capital</b>	Social capital	Sport participation is associated with enhanced social capital through <b>10%</b> higher social networks, trust and reciprocity <sup>18</sup>
<b>Education</b>	Educational attainment	Sport participation leads to a <b>1% increase</b> in educational attainments (aged 11-18)
	Enhanced human capital	Graduates who participate in sport at university earn an average of <b>18%</b> more per year than their non-sporting counterparts <sup>19</sup>
<b>Crime</b>	Criminal incidences	Sport participation leads to a <b>1% reduction</b> in criminal incidents for males aged 10-24 years
<b>Other</b>	Non-market value for sports organisations utilising volunteers	Volunteers create non-market benefits to the organisations they give their time to.
		Volunteer time is worth at least the equivalent value of average hourly earnings

<sup>13</sup> Includes Alzheimer's disease, Parkinson's disease, and general neurodegenerative disease.

<sup>14</sup> Fujiwara, D., Kudrna, L., Cornwall, T., Laffan, K., Dolan, P. (2015). *Further analysis to value the health and educational benefits of sport and culture*. DCMS.

<sup>15</sup> Fujiwara, D., Kudrna, L. and Dolan, P. (2014a). *Quantifying and valuing the wellbeing impacts of culture and sport*. DCMS.

<sup>16</sup> Join in. (2014). *Hidden diamonds: Uncovering the true value of sport volunteers*. <https://www.joininuk.org/hidden-diamonds-true-value-of-sport-volunteers/>

<sup>17</sup> Fujiwara, D., Leach, M., Trotter, L. and Vine, J. (2014b). *Measuring the social impact of community investment: A guide to using the wellbeing valuation approach*, HACT: ideas, and innovation in housing.

<sup>18</sup> Gratton, C., Cuskelly, G., Toohey, K., Skinner, J., Lock, D., Kokolakis, T. and Lu, X. (2018 unpublished) *Economic value of community club-based sport in Australia*. Australian Sports Commission and Griffith University, Queensland

<sup>19</sup> Allen, K., Bullough, S., Cole, D., Shibli, S and Wilson, J. (2013). *The impact of engagement in sport on graduate employability*. [online].

[http://c1593.r93.cf3.rackcdn.com/BUCS\\_Employability\\_Research\\_Report.pdf](http://c1593.r93.cf3.rackcdn.com/BUCS_Employability_Research_Report.pdf)

evidence, every effort has been made to keep these estimates conservative. This is entirely consistent with previous SROI studies.

### 3.3.2 Excluded outcomes

Several social outcomes have been excluded from the Wales SROI study, primarily due to a lack of robust empirical evidence linking social outcomes with sport participation. This is entirely consistent with previous sport SROI studies and reflects the lack of evidence relating to these areas.

Specific outcomes excluded from this study include:

- Musculoskeletal health (including osteoporosis/falls) in older populations;
- Sports injuries (adults and children);
- Secondary prevention of various illnesses (therapeutic benefits);
- Anti-social behaviour that does not register in data on criminal incidents;
- Primary school educational attainment;
- Educational 'individual' or 'intermediate' outcomes, e.g. behaviour, attendance;
- Health outcomes for children.

**NOTE: The exclusion of various outcomes as noted above is highly likely to result in an underestimation of the social value of sport participation in Wales. Nevertheless, until more evidence is available, it is not possible to include these in any SROI estimates.**

### 3.3.3 Valuing outcomes

This section of the report provides notes to explain the valuation of the included outcomes and the key findings. The first section focuses on the valuation of the eight health outcomes and the second section summarises the other six outcomes.

#### Health

We measured five physical health outcomes, one mental health outcome, and a further composite outcome of improved good health (as measured by a combination of reduced GP visits and reduced usage of psychotherapy health services). The values of the health outcomes are summarised in Table 3.4. The first six health outcomes were valued by estimating the number of potential cases averted by sport participation (quantity)<sup>20</sup>, multiplied by the average annual cost<sup>21</sup> per person diagnosed with the condition (value). The seventh outcome (good health) was valued by multiplying the number of people who participate in sport in Wales, by the estimated cost savings per person resulting from reduced GP visits and mental health service usage (psychotherapy) associated with self-reported good

---

<sup>20</sup> Calculated using prevalence rate of health condition; physical activity participation rate and the impact of participation on reducing risk.

<sup>21</sup> Average annual cost varies between each outcome but in most cases includes health care costs, social care or informal care costs, and in some cases, loss of productivity.

health<sup>22</sup>. As a conservative measure, we adjusted the calculation of costs saved through reduced GP visits so that it explicitly excludes the number of individuals that have been accounted for in the valuation of the other six specific health conditions in Table 3.4. Similarly, we adjusted the calculation of costs saved through reduced use of mental health services by the number of people accounted for in the valuation of clinical depression.

**Table 3.4: Health valuation - summary**

Outcomes		Impact (£m)		
Description	Quantity	Value Per Unit		% of Health
Reduced risk of CHD and stroke in active men and women by 30%	24,967	£3,910	97.62	33.07
Reduced risk of developing Type 2 diabetes by 10%	8,588	£3,879	33.32	11.29
Reduced risk of breast cancer in active women by 20%	214	£51,531	11.01	3.73
Reduced risk of colon cancer by 24%	155	£51,531	7.99	2.71
Reduced risk of dementia by 30%	2,906	£35,144	102.13	34.60
Reduced risk of clinical depression by 21%	11,597	£296	3.43	1.16
<b>Increased self-reported good health (14.1% ) leading to:</b>				
➤ reduced GP visits	1,148,562	£14	16.59	5.62
➤ reduced use of mental health services	1,185,392	£19	23.08	7.82
<b>Sub total</b>			<b>295.17</b>	<b>100.00</b>

Overall, the social value of health outcomes through participation in sport is £295.17m. As shown in Table 3.4, the largest value was created by the reduced prevalence of dementia (£102.13m) closely followed by the reduced prevalence of CHD and stroke (£97.62m). Taken together, these two outcomes accounted for more than two-thirds of the value generated from the health-related outcomes.

### Other social outcomes

Table 3.5 summarises the estimated value of the other outcomes. The values of the subjective well-being, social capital, education, crime outcomes, and the non-market value for sports organisations utilising volunteers are reported in the impact column.

#### *Subjective well-being*

We used values derived from the Well-being Valuation Approach<sup>23</sup> to estimate the value of subjective well-being for both participants and volunteers in Wales<sup>24</sup>. For sport participants in Wales, the value per participant (£1,195)<sup>25</sup> was multiplied by the number of adults (16+ years)

<sup>22</sup> Fujiwara, D., Kudrna, L., Cornwall, T., Laffan, K., Dolan, P. (2015). *Further analysis to value the health and educational benefits of sport and culture*. DCMS.

<sup>23</sup> The Wellbeing Valuation Approach is a relatively new method of non-market valuation. It uses people's self reports of their levels of wellbeing using large national datasets. It then estimates the equivalent money needed to increase someone wellbeing by the same amount. See Fujiwara, D., Kudrna, L. and Dolan, P. (2014a).

<sup>24</sup> Inflation adjusted values

<sup>25</sup> Fujiwara, D., Kudrna, L. and Dolan, P. (2014a). *Quantifying and valuing the wellbeing impacts of culture and sport*. DCMS

taking part in sport (quantity). For volunteers, the value per participant (£2,498)<sup>26 27</sup> was multiplied by the number of volunteers in Wales (quantity). Table 3.5 illustrates the value participants' gain from higher subjective well-being was estimated to be £1,430m and the value volunteers' gained was £645.9m. In total, the contribution of sport to subjective well-being in Wales was £2,076m.

### *Social capital*

The social capital value is adapted from estimates in an Australian empirical study (Gratton *et al.* 2018). This utilises the same methods as Fujiwara *et al.* (2014a) to estimate the hypothetical income required to compensate for not benefiting from social capital enhancement through participation in sport. Social capital is represented by an average score, taken from a population survey, of seven measures - three for community engagement, one for community identification, one for personalised trust, one for generalised trust, and one for reciprocity. The average score for these measures is approximately 10% higher for sport participants than non-participants. The value of this differential, adapted for the Wales case, is shown in Table 3.5 to be £544 per head, which across all sport participants in Wales sums to £651.47m.

### *Education*

Two education-related outcomes were valued in Wales. The literature suggests that participation in sport has a net positive impact on educational attainment (11-18) and the starting salaries of graduates who participate in sport at university.

The first education-related outcome was calculated by estimating the number of additional sports participants aged 16 and 18 with formal qualifications (GCSEs and A-levels) (quantity), by average annual lifetime productivity returns (value). This method of valuing qualifications is used by the Department for Education.

The second education-related outcome was valued by estimating the number of final year students in Higher Education institutions in Wales participating in sport, multiplied by the average additional starting salary for graduates who are sports participants. As shown in Table 3.5, the value of increased educational attainment was approximately £0.23m and the value of a higher starting salary for graduates with sport (enhanced value of human capital) was £90.91m. The contribution of sport to education in Wales was £91.15m.

### *Crime*

The crime outcome was valued by estimating the number of criminal incidents prevented among males in the 10-24 cohort taking part in sport (quantity), multiplied by the average cost

---

<sup>26</sup> Join in. (2014). *Hidden diamonds. Uncovering the true value of sport volunteers.*  
<https://www.joininuk.org/hidden-diamonds-true-value-of-sport-volunteers/>

<sup>27</sup> Fujiwara, D., Leach, M., Trotter, L. and Vine, J. (2014b). *Measuring the social impact of community investment: A guide to using the wellbeing valuation approach.* HACT: ideas and innovation in housing.



per incident of crime (value). As shown in Table 3.5, the total impact for crime reduction in Wales was estimated to be £2.17m.

*Non-market value for sports organisations utilising volunteers*

As highlighted previously, volunteer time is both an input and an outcome. It is an in-kind input which has an equivalent outcome value to organisations. Volunteering has a non-market value for organisations utilising volunteers, which is not captured in economic importance studies. It is distinct from the individual subjective well-being of volunteers and the social capital benefits that are gained by society. We express this by using the equivalent labour market value of volunteers' time, which is calculated using average volunteer hours (105.4) multiplied by average hourly earnings in Wales (£11.44). This we see as a minimum representation of the non-market value for organisations utilising volunteers. The value of this is £311.76m.

**Table 3.5: Other outcomes valuation summary**

Outcome	Description	Quantity	Value Per Unit	Impact (£m)
<b>Subjective well-being</b>	Sport participation (in the last year) is found to be associated with higher subjective well-being	1,196,989	£1,195	1,429.95
	Sport volunteering is found to be associated with higher subjective well-being	258,532	£2,498	645.92
<b>Social Capital</b>	Sport participation is associated with enhanced social capital	1,196,989	£544	651.47
<b>Education</b>	Sport participation leads to a 1% increase in educational attainments (aged 11-18)	171	£1,371	0.23
	Graduates who participate in sport at university have a higher starting salary than their non-sporting counterparts (enhanced value of human capital)	14,321	£6,348	90.91
<b>Crime</b>	Sport participation leads to a 1% reduction in criminal incidents for males aged 10-24 years	1,282	£1,696	2.17
<b>Other</b>	Sport volunteers create a non-market benefit for organisations through the value of (in-kind) time contribution	258,532	£1,206	311.76
<b>Sub total</b>				<b>3,132.42</b>

**3.4 Establishing impact**

Stage 4 of a SROI analysis establishes impact. Ordinarily, the valuation of the outcomes discussed in section 3.3.3 would be adjusted for duration, deadweight, displacement, attribution, discounting and drop-off. However, in this study these adjustments are not necessary. We have assumed that taking a snapshot of social value in a given year is a reasonable conflation of the more dynamic process of continued investment and participation in sport, and as such there is no need to make adjustments for duration, drop-off and discounting. Deadweight is already implicit in the non-participant default case and attribution

to sport has been discussed previously in the report (assumptions and limitations). For further discussion of these methodological considerations, see Appendix 2

### 3.5 SROI calculation

#### 3.5.1 SROI ratio

The final stage of a SROI analysis is to calculate the SROI value or ratio. Table 3.6 summarises the main constituent parts of the Social Return on Investment calculation. Total inputs are around £1,191m. The total value of all outcomes is approximately £3,428m. This gives a Net Present Value (the difference between the value of the outcomes and inputs) of £2,236m and a SROI ratio of 2.88 - i.e. **for every £1 invested in sport in Wales, £2.88 worth of social benefit is generated.**

In our calculations, the largest contribution to social value is associated with subjective well-being totalling £2,076m. This is around 60.6% of all social value generated by sport in Wales. The second largest contribution is from social capital, which contributes 19.0% (£651.5m), followed by the non-market value for sports organisations utilising sport volunteers (9.1%) and then health at 8.6% (£295.2m).

**Table 3.6: Summary of the SROI calculation for Wales**

		Value (£m)
<b>Inputs</b>	Participants	636.62
	Volunteers	311.76
	Public sector	242.72
<b>Total</b>		<b>1,191.10</b>
<b>Outcomes (Social value)</b>		
	<b>Health</b>	<b>295.17</b>
	CHD and stroke	97.62
	Type 2 diabetes	33.32
	Breast cancer	11.01
	Colon cancer	7.99
	Dementia	102.13
	Clinical depression	3.43
	Good health	39.66
	<b>Subjective well-being</b>	<b>2,075.87</b>
	<b>Social Capital</b>	<b>651.47</b>
	<b>Education</b>	<b>91.15</b>
	Improved attainment	0.23
	Enhanced human capital	90.91
	<b>Crime</b>	<b>2.17</b>
	<b>Other*</b>	<b>311.76</b>
<b>Total</b>		<b>3,427.58</b>
<b>Net Present Value</b>		<b>2,236.49</b>
<b>SROI</b>		<b>2.88</b>

\* Non-market value for sports organisations utilising volunteers

### 3.5.2 Sensitivity analysis

One of the key components of a SROI analysis is to test the sensitivity of the SROI to variations in data used e.g. outcome measures, financial proxies etc. However, given the general lack of empirical work on the social value of sport, the sensitivity analysis for the base model is limited. It was possible to change the key assumptions for certain health outcomes, based on the range of values found in the literature. Table 3.7 illustrates how this affects the overall values attached to them.

**Table 3.7: Sensitivity analysis**

Outcome	Base Model Assumption	Base Model Value (£m)	Alternative Assumption	Alternative Value (£m)
<b>CHD and stroke</b>	Reduced risk of CHD and stroke in active men and women by 30%	97.62	11% (low)	32.44
			52% (high)	192.25
<b>Breast cancer</b>	Reduced risk of breast cancer in active women by 20%	11.01	10% (low)	5.26
			30% (high)	17.32
<b>Dementia</b>	Reduced risk of dementia by 30%	102.13	21% (low)	68.15
			38% (high)	135.26
<b>Clinical depression</b>	Reduced risk of clinical depression by 25%	3.43	12% (low)	1.87
			30% (high)	5.15

In the case of the four health outcomes shown in Table 3.7 we have varied the percentage of the risk reduction among sport participants based on the upper and lower bounds identified from the review of literature. For example, in the case of CHD and stroke, if we assume that the reduced risk for sport participants is 11% (compared with 30% in the base model) then the overall value for this outcome reduces to £32.44m (compared with £97.62m in the base model). Similarly, if the risk reduction among sport participants for CHD and stroke was 52%, then the overall value increases to £192.25m.

If we use the most conservative values for the four health outcomes and keep all other outcomes constant, then the overall SROI ratio is **2.79** (compared with 2.88 in the base Model). Using the most ambitious values for health increases the SROI ratio to **2.99**. This indicates that the SROI is not overly sensitive to variations in the key assumptions for the health outcomes under consideration.

## 4. CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Conclusions

The research presented in this report measures the social benefits of sport in Wales. It is the first time a SROI framework has been used to measure the wider contribution of sport in Wales. The research found that the overall SROI for Wales was positive. The SROI value is **2.88**, meaning that for every £1 invested in sport in Wales (including both financial and non-financial inputs), £2.88 worth of social impact is generated for individuals and society.

The Wales SROI model revealed that £3,428m of social value was generated from sport in 2016/17. Subjective well-being accounts for a significant proportion of the social value generated in Wales (60.6%), followed by social capital (19.0%), the non-market value for sports organisations utilising sport volunteers (9.1%) and health (8.6%). Education and crime make up the remaining contribution. These are significant and powerful findings to share with the Welsh Government and other funding stakeholders as they provide evidence of the significant social return on their investment in sport.

The social value of sport presented in the Wales SROI model does not take account of the economic value of sport, presented in Report 2. Sport in 2016/17 contributed £1,142m of GVA to the Welsh economy and 29,700 jobs. It is important for Sport Wales to recognise both elements of value when making the case for continued investment and support from the Welsh government and other funding agencies. The economic and social value of sport may be aligned to the well-being goals in different ways. A suggestion is provided in Table 4.1.

**Table 4.1. The well-being goals and the social value of sport**

<i>Well-being goal</i>	<i>Social value of sport</i>
<b>A prosperous Wales</b>	Sport generates <b>£1,142m</b> to the Welsh economy. It creates <b>29,700</b> jobs.
<b>A Wales of vibrant culture and thriving Welsh language</b>	The social value of participating and volunteering in sport is <b>3,428m</b> .
<b>A Wales of cohesive communities</b>	The social value of enhanced social capital is <b>£651.47m</b> ; enhanced education is <b>£91.15m</b> ; and reduced crime is <b>£2.17m</b> .
<b>A healthier Wales</b>	The social value of improved health is <b>£295.17m</b>

As with previous SROI sport studies, the estimates presented in the Wales SROI study are conservative. We have only included the outcomes for which there is strong evidence between social impact and sport participation, and there is data available to enable the valuation of these outcomes. On this basis, we have excluded several health, crime and education outcomes (positive and negative) from this study. As such the findings of this research are likely to underestimate the true social value of sport in Wales.

## 4.2 Recommendations

Based on the findings of this report, we suggest three high level recommendations as follows:

1. We recommend that the findings of the SROI and the economic importance of sport are shared with Sport Wales' stakeholders to evidence how sport contributes to the well-being goals for Wales.
2. A fundamental driver of social value is the overall number of sports participants and volunteers. Put simply, more engagement in sport will create higher social value. To increase the social impact of sport in Wales, we recommend continued investment and strategies to encourage both participation and volunteering.
3. As with previous studies on the economic importance of sport in Wales, we recommend that a SROI analysis of sport in Wales is repeated periodically to demonstrate the changing contribution of sport to society. This will allow the creation of time series data and enable the assumptions of the model to be updated to reflect any new evidence on the social impact of sport.

In common with other sport SROI models, there are elements of social value that are not measured in the Wales SROI model, through either a lack of evidence or data. A notable omission is the cost of sports injuries. We know that data on injuries is collected in Wales, but it was not available in an accessible format to be included in this research. A further recommendation is that if data for adult or child sports injuries in Wales becomes available, this outcome is added to the SROI analysis at a later stage or included in the scope of any future studies.

Through this research, we have made two notable improvements to the original population-wide SROI model developed to estimate the value of sport in England. First, we have valued the contribution of sport to mental health and second, we have included social capital in terms of the value to communities. While the analysis presented in this report continues to be a conservative estimate of the value of sport, both additions enhance considerably the accuracy of the model as a framework for measuring the Social Return on Investment of sport in Wales.

## 5. REFERENCES

Allen, K., Bullough, S., Cole, D., Shibli, S and Wilson, J. (2013). *The impact of engagement in sport on graduate employability*. [online].

[http://c1593.r93.cf3.rackcdn.com/BUCS\\_Employability\\_Research\\_Report.pdf](http://c1593.r93.cf3.rackcdn.com/BUCS_Employability_Research_Report.pdf)

Coalter, F. (2007). *A wider social role for sport: who's keeping the score?* Routledge, London and New York

Council of Europe Portal (2018). Committee of Ministers. European Sports Charter. [online].

[https://search.coe.int/cm/Pages/result\\_details.aspx?ObjectID=09000016804c9dbb](https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016804c9dbb)

Fujiwara, D., Kudrna, L., Cornwall, T., Laffan, K., Dolan, P. (2015). *Further analysis to value the health and educational benefits of sport and culture*. DCMS.

Fujiwara, D., Kudrna, L. and Dolan, P. (2014a). *Quantifying and valuing the wellbeing impacts of culture and sport*. DCMS.

Fujiwara, D., Leach, M., Trotter, L. and Vine, J. (2014b). *Measuring the social impact of community investment: A guide to using the wellbeing valuation approach*, HACT: ideas, and innovation in housing.

Future Generations. (2018). Well-being of future generations (Wales) Act (2015).

Commissioner for Wales. [online]. <https://futuregenerations.wales/about-us/future-generations-act/>

Gratton, C., Cuskelly, G., Toohey, K., Skinner, J., Lock, D., Kokolakakis, T. and Lu, X. (2018 unpublished). *Economic value of community club-based sport in Australia*. Australian Sports Commission and Griffith University, Queensland

Join in. (2014). *Hidden diamonds: Uncovering the true value of sport volunteers*.

<https://www.joininuk.org/hidden-diamonds-true-value-of-sport-volunteers/>

Putnam, R. D., (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster, New York

SIRC (2016). *Social Return on investment in Sport: A Participation wide model for England: Summary Report*. [online].

<http://www4.shu.ac.uk/assets/pdf/research/sirc/Final-SIRC-SROI-England-Web-report.pdf>

Sport Wales (2018). This is Sport Wales, Annual Accounts; 2016/17.

Sport Wales (2018). A Vision for Sport in Wales. [online].

[http://www.sport.wales/media/506916/sport\\_wales\\_english\\_vision\\_doc\\_reprint\\_all\\_v3.pdf](http://www.sport.wales/media/506916/sport_wales_english_vision_doc_reprint_all_v3.pdf)

Stats Wales (2018). Capital outturn expenditure, by service. [online].

<https://statswales.gov.wales/Catalogue/Local-Government/Finance/Capital/Outturn/capitaloutturnexpenditure-by-service>

Stats Wales (2018). Revenue outturn expenditure summary, by service. [online]. <https://statswales.gov.wales/Catalogue/Local-Government/Finance/Revenue/Outturn/revenueoutturnexpendituresummary-by-service>

Vencke, V., Peersman, W., De Maseneer, J. and Willems, S. (2012). Measuring the immeasurable? Operationalising social capital in health research, *Health*, Vol 4, 555-566

Wales Council for Voluntary Action (2018). The Well-being of Future Generations (Wales) Act - All you need to know. [online]. [https://www.wcva.org.uk/what-we-do/the-future-generations-\(wales\)-act-all-you-need-to-know](https://www.wcva.org.uk/what-we-do/the-future-generations-(wales)-act-all-you-need-to-know)

Welsh Government (2018). Sport Wales. [online]. <http://gov.wales/topics/culture-tourism-sport/sportandactivererecreation/sport-wales/?lang=en>

## 6. APPENDICES

### Appendix 1: Summary of literature

#### 1.1. Children

The databases Scopus, Sport Discus, Medline and Google Scholar were searched for literature concerning sport/exercise, children and social outcomes. The search found that there was limited evidence on the relationship between children's sport participation and social outcomes. The literature available focussed on mental health, namely depression, academic achievement and injuries.

In summary, the literature found there was a lack of robust empirical data linking the social outcomes with children's sport participation. The literature tended to focus on physical activity or specialised interventions including recreational activity of low intensity rather than sport. Much of the evidence was cross sectional or based on narrative review making it hard to infer causality. Furthermore, a high proportion of evidence was based on clinical populations therefore cannot be generalised to the whole populations. Until there is more quantitative, longitudinal research linking young people's sport participation with social outcomes it is difficult to quantify such a relationship and therefore include further child outcomes in the research. The following sections highlight some of the key papers and findings related to the three areas

#### *Mental Health / depression*

Larun *et al.* (2010) conducted a systematic review to investigate whether exercise reduces or prevents depression or anxiety in young people compared to other treatments and no treatment. Data from 16 randomised controlled trials were analysed. Results from the depression studies found there was a statistically significant difference for the exercise group (SMD -0.66; 95% CI -1.25 to -0.08) however there was a non-significant difference for exercise interventions and anxiety (SMD -0.48; 95% CI -0.97 to 0.01). Furthermore, the randomised control studies found in the study were of poor methodological quality and based on a variety of populations and interventions. Larun *et al.* (2010) concluded that the effect of exercise for children in treatment for anxiety and depression is unknown as the evidence base is scarce.

Biddle and Asare (2011) carried out a systematic review looking at the evidence base for physical activity and depression, anxiety, self-esteem and cognitive functioning. A total of 18 studies were found across the mental health categories. They found an association between physical activity and reduced depression but the studies found were of low quality with many a cross sectional research design; the same was found for anxiety. Improvements were found in self-esteem but these were short term and based on low quality research. Similarly, an association was found between physical activity and improved cognitive functioning however, these associations were small and inconsistent. As with the previous review discussed, Biddle and Asare (2011) concluded that the evidence base is lacking with limited good quality research, citing weak research designs and small to moderate effect sizes as issues.



Eime *et al.* (2013) also reviewed 30 studies investigating mental health and/or social health benefits from sport participation. They found the most common reported benefits to be improved self-esteem, social interaction and fewer depressive symptoms. Eime *et al.* (2013) were consistent with Larun *et al.* (2010) and Biddle and Asare (2011), finding mainly cross sectional studies, therefore inhibiting a causal link to be made.

#### *Academic Achievement*

Kwak *et al.* (2009) investigated the association between physical activity and academic achievement and whether cardiovascular fitness mediates this. The study was cross sectional, using data from 15-16 year old pupils at 14 different schools in Sweden. Academic achievement was measured by exam results in the 9<sup>th</sup> grade and physical activity was measured using an accelerometer and converted into the metabolic equivalent (METs). They found that for girls, academic achievement was associated with vigorous physical activity and not mediated by fitness, whereas with boys only fitness was associated with academic achievement.

Donnelly and Lambourne (2011) presented results from a 3 year study examining the impact of physically active academic lessons on body mass index and academic achievement. The sample size was 167 students, 77 were in the intervention group and 90 in the control group. They found that physically active lessons of moderate intensity improved overall performance on a standardised test by 6% compared to 1% for controls.

Saevarsson *et al.* (2017) looked at the relationship between organised leisure-time sport participation (OLSP) and academic achievement among 248 children aged nine years old. The children's OLSP was self-reported with the help of an adult and results from standardised test in Icelandic and maths were used as measures for academic achievement. They found that OLSP only correlated with achievement in Maths. The authors note there is a need for further research in this area to understand if the relationship is causal.

Although the results all suggest a positive relationship, none of the studies mentioned above quantify the relationship between physical activity and academic achievement. In addition they are all based on specific physical activity interventions rather than sport or exercise and two out of the three are cross sectional. Moreover they are all based on school children with relatively low sample sizes therefore should be viewed with caution.

#### *Injuries*

The majority of literature concerning sport-related injuries looked at children and young people rather than adults and focussed on specific exercises for injury prevention rather than the relationship between injuries and sport participation.

A systematic review was carried out by Janssen and LeBlanc (2010) examining the relationship between physical activity, fitness and health in school-aged children. Three papers were found relating to physical activity and injuries, all of which reported higher rates of injury in physically active children compared to inactive children. A correlation was also found with

physical activity participation and the likelihood of injury; the more someone took part in physical activity, the increased risk they had of getting injured. The papers were all cross sectional and based on self-reported measures of physical activity.

Sheu *et al.* (2016) gathered information on injuries requiring medical attention from the National Health Interview Survey in the USA. They found the highest rate of sports related injuries was in children aged 5-14 (86.0 episodes per 1,000 persons for boys and 66.8 per 1,000 persons for girls). Overall males accounted for 61% of the sports related injuries. Although the results signify an association between sport and injuries, there is no evidence to state causality. The authors acknowledge the limitations of the study due to the self-reported and retrospective data.

Children - Mental health

Author(s) (Date)	Sport / exercise	Study type	Sample	Social Outcome(s) investigated	Findings
<b>Biddle, S and Asare, M (2011)</b>	Physical activity	Systematic review	18 studies.	Depression, anxiety, self-esteem, cognitive functioning.	PA potentially has beneficial effects for reducing depression but evidence is limited. PA can lead to improvements in self-esteem, at least in the short term.
<b>Craft and Landers (1998)</b>	Physical activity, aerobic and anaerobic	Systematic review and meta-analysis	30 studies, 3 with young people.	Depression / Clinical depression.	Exercise significantly reduced depression among participants with clinical depression and depression resulting from mental illness. Overall mean effect size for young people was (-0.15).
<b>Eime, R et al. (2013)</b>	Sport 'team sport' 'club sport' 'school sport'	Systematic review	30 studies.	Various mental health conditions. including depression.	The most common positive outcomes were higher self-esteem (6 studies), better social skills (5 studies), fewer depressive symptoms (4 studies), higher confidence (3 studies), high competence (3 studies) amongst sport participants than non-sports participants.
<b>Larun, L et al. (2010)</b>	Vigorous physical activity with a minimum duration of four weeks.	Systematic review of RCTs	16 studies with 1,191 participants; Children and YP aged 11-19 with or without depression.	Depression and anxiety	Studies were categorised into 'general population' and 'in treatment' and 'no intervention' 'low intensity exercise' and 'psychosocial interventions'. For the 'general population' and exercise vs. no intervention there was a borderline statistically significant difference in favour of the exercise group for reduced anxiety. (-0.48; 95% CI (-0.97 0.01)) and statistically significant difference for reduced depression (-0.66; 95% CI (-1.25 -0.08)).
<b>Calfas and Taylor (1994)</b>	Physical activity	Meta-analysis	20 studies, 11 with young people.	Various mental health conditions. including depression.	Physical activity reduces depression. Effect size was -0.38.

<b>North, T et al. (1990)</b>	Physical activity	Meta-analysis	5 studies with young people.	Depression	Exercise groups decreased depression scores more than comparison groups (control / psychotherapy etc.) Effect size was -0.49 for young people.
<b>Annesi, JJ (2005)</b>	Physical activity (after school exercise program)	RCT	49 treatment, 41 control; 9-12year olds.	Depression, mood disorder	Significant change for treatment group in self-reported depression scores. No change in control group.
<b>Gore, S et al. (2001)</b>	Team sport	Cohort study	1,036 participants (9 - 11th graders).	Depressed mood	Team sport involvement associated with reduced (self-reported) depressed mood.
<b>Boone and Leadbeater (2006)</b>	Team sport	Cross-sectional	449 participants (8 - 10th graders).	Depressive symptoms	Participation in team sports partially mediated the risks for depressive symptoms.
<b>Brosnahan, J et al. (2004) (From Janssen and LeBlanc)</b>	Physical activity	Cross-sectional	1,870 hispanic and non-hispanic white adolescents aged 14-18.	Suicide (sadness / depression)	Greater attendance in PE was inversely related to feelings of sadness (OR 0.80; 95% CI (0.68 - 0.94)); participating in more PA sessions per week was associated with lower risk of considering suicide (OR 0.72; 95% CI (0.65 - 0.79). Higher levels of vigorous PA (OR 0.73; 95% CI (0.57 - 0.93)), total PA (OR 0.65; 95% CI (0.48 - 0.87)), and strength and toning activity (OR 0.64; 95% CI (0.42 - 0.99)) were associated with a lower risk of planning suicide.
<b>Haarasilta, L et al. (2004)</b>	Infrequent physical exercise	Cross-sectional	509 adolescents, aged 15-19.	Depressive episodes	Among young adults infrequent exercise was related to major depressive episode. (OR 4.01; 95% CI (1.18 - 14.0))
<b>Jaworska, N et al (2017)</b>	Aerobic exercise	Cross-sectional	13 inactive 18-24 year olds.	MDD (Depression)	Clinical population diagnosed with major depressive disorder. Depression scores decreased.
<b>Michaud, P et al. (2006)</b>	Extracurricular school sport	Cross-sectional	7,428 young people aged 16 - 20 years old.	SWB	Active adolescents reported having a better feeling of well-being than their inactive peers (male students OR 3.13; CI (1.28 - 7.70)) (female students OR 1.81; CI (0.92 - 3.54))
<b>Pyle, R et al. (2003)</b>	Organized school sport	Cross-sectional	770 students, mean age 15.9years.	Mental health	Factor scores were derived from the juvenile Wellness and health survey (KWHS-76). They suggest that compared with less active students, competitive sport participation was associated with fewer mental health problems for both boys and

					girls.
<b>Snyder, A et al. (2010)</b>	School or club sport participation	Cross sectional	325 high school students; 219 athletes, 106 non-athletes.	Mental health	Athletes reported higher scores on the SF-36 and mental health subscales than non-athletes. On the PODCI athletes reported higher scores on the happiness subscales.
<b>Tao, F et al. (2007)</b>	Physical activity	Cross - sectional	5,453 students aged 12 - 16+ / grade 7 -11.	Psychopathological disorders	Low-moderate intensity PA was a protective factor of depression (OR 0.61; 95% CI (0.40 - 0.91)) and psychotic symptoms (OR 0.54; 95% CI (0.31 - 0.93))
<b>Valois, R et al. (2004)</b>	Team sports	Cross sectional	4,758 students in grades 9-12.	SWB (life satisfaction)	Results were split by race-gender groups. Playing team sports associated with higher life satisfaction.

*Children - Other*

Author(s) (Date)	Sport / exercise	Study type	Sample	Social Outcome(s) investigated	Findings
<b>Ekeland, E et al. (2004)</b>	Exercise / physical activity	Systematic review	23 RCTs with a total of 1,821 young people aged 3 - 20yrs old.	Self esteem	Four studies provided data sufficient to calculate overall effects and the results indicate a moderate short-term difference in self-esteem in favour of the intervention.
<b>Ekeland, E (2005)</b>	Exercise / physical activity	Systematic review	23 RCTs.	Self esteem	Exercise may be effective in improving self-esteem in children and young people.
<b>Janssen, I and LeBlanc, A (2010)</b>	Physical activity	Systematic review	86 studies.	Various health measures (Cholesterol, depression, blood pressure, injury, bone density, obesity, metabolic syndrome)	To achieve substantial health benefits, the physical activity should be of at least moderate intensity. Vigorous intensity activities may provide even greater benefit. Aerobic-based activities had the greatest health benefit, other than for bone health, in which case high impact weight bearing activities were required.

<b>Raspberry, C et al. (2011)</b>	School based physical activity	Systematic review	50 studies.	Academic performance	Results suggest physical activity is either positively related to academic performance or that there is not a demonstrated relationship between physical activity and academic performance. They suggest that adding physical activity to the school day may enhance and does not detract from academic performance.
<b>Donnelly, J and Lambourne, K (2011)</b>	PAAC (Physical activity across the curriculum)	RCT	1,342 children from 24 schools; 14 intervention, 10 controls.	Cognitive function, academic achievement	Physically active academic lessons of moderate intensity improved overall performance on a standardized test of academic achievement by 6% compared to a decrease of 1% for controls.
<b>Kwak, L et al. (2009)</b>	Physical activity (Split into light, moderate and vigorous METs)	Cross-sectional	232; 9th grade (15/16years old).	Academic achievement	In girls, academic achievement was associated with vigorous physical activity not mediated by fitness, whereas in boys only fitness was associated with academic achievement.
<b>Saevarsson, E et al. (2017)</b>	Organised leisure time sport	Cross sectional	248 school children aged 9.	Academic achievement	OLSP correlated with achievement in maths only. and suggest that frequent (four times or more per week) sport participation is not harmful but may be beneficial to learning.
<b>Sothorn, M et al. (1999)</b>	Physical activity	Narrative review	n/a	Various health measures	Moderate intensity exercise of a non-structured nature facilitates most of the disease preventive goals and health promoting benefits.
<b>Williams, M (1993)</b>	Exercise / physical activity	Narrative review	n/a	Various health measures	The potential benefits of PA far out-weigh the risks. Too much or too little exercise may pose health risks.

Children - Injuries

Author(s) (Date)	Sport / exercise	Study type	Sample	Social Outcome(s) investigated	Findings
<b>Rossler, R et al. (2014)</b>	Exercise	Systematic review and meta-analysis	21 trials on 27,561 athletes (mean age of 16.7years).	Injuries	Analysed the effects of an exercise based injury prevention program in athletes younger than 19. 0.54 Rate ratio (95% CI (0.45 - 0.67)). Girls profited more from injury prevention than boys.
<b>van Mechelen et al. (2011)</b>	Physical activity and sport	Cohort study	955 children (aged 10-12).	Injuries	Total of 119 injuries reported by 104 children resulting in an overall injury ID of 0.48 per 1000 h of exposure (95% CI 0.38 TO 0.57). ID was lowest for leisure time PA, followed by PE and sports. Overall for girls (ID 0.60; 95% CI 0.45 to 0.75) a higher injury ID was reported than for boys (ID 0.37; 95% CI 0.26 to 0.48).
<b>Janssen, I et al. (2007)</b>	Physical activity	Cross sectional	5,559 Canadian youth in grades 6-10.	Injuries	There were strong gradient relations between PA and related injuries outside of school. However there were modest relations between PA participation and related injuries at school.
<b>Mattila, V et al. (2004)</b>	Sport clubs	Cross sectional	8,219 students aged 12-18.	Injuries	Incidence of injuries was 62 per 1000person/months. Boys had a slightly higher injury occurrence rate than girls (OR 1.33; 95% CI (1.13 - 1.59)). The second strongest risk factor of injury was daily leisure time exercise in sports clubs (OR 3.3; 95% CI (2.3 - 4.6)). Adolescents school success, parent's education, occupation and employment status were not associated with injuries.
<b>Tsuang, H et al. (2001)</b>	Sport	Cross sectional	13,764 students aged 12-15.	Injuries	An injury rate of 532.8/1000 person/year with male students approx. three times more likely than female students to experience sports injuries. Other factors associated with the occurrence of sports injuries were type of school (private/public), levels of personal stress, exercise and parental education.

<b>Aleman and Meyers (2010)</b>	Mountain biking	Narrative review	n/a	Injuries	Discussion about the causation and risk factors associated with injury among young mountain bikers.
<b>Garrick and Requa (2003)</b>	Sports and fitness	Narrative review	n/a	Injuries	Negative consequences of musculoskeletal injuries sustained during sport participation in childhood adolescence may compromise function later in life, although there is limited long term evidence. In the absence of injury vigorous participation in sports and fitness activities during childhood and adolescent increases the likelihood of developing subsequent osteoarthritis.



## 1.2. Mental health (adults)

As for the literature regarding children the databases Scopus, Sport Discus, Medline and Google Scholar were searched for literature concerning sport/exercise, adults and mental health conditions. A range of literature was found but the majority focussed on depression and anxiety. All of the studies identified a positive relationship between exercise and reduced depression; in contrast results for anxiety were varied and inconsistent. It is worth noting that some of the literature focussed on clinical populations (Zschucke *et al.* 2013; Helgadottir *et al.* 2017; Olafsdottir *et al.* 2017; Rahman 2017) but the majority of the literature was of good methodological quality (RCTs, systematic reviews and cohort studies) and quantified the reduced risk of being diagnosed with depression as a result of exercising. Furthermore, robust empirical evidence was found showing a positive relationship between exercise and reduced depression. A cohort study conducted by Harvey *et al.* (2017) following 33,908 adults for 11 years found that exercise reduces depression by 12%.

Author(s) (Date)	Sport / exercise	Study type	Sample	Social Outcome(s) investigated	Findings
<b>Bridle, C et al (2012)</b>	Various	Meta-analysis of RCTs	9 studies; 667 participants aged 65-80.	Depression	Exercise was associated with significantly lower depression severity. (SMD = -0.34; 95% CI (-0.52 -0.17))
<b>Gordon et al. (2017)</b>	Resistance exercise training (RET)	Systematic review	16 studies.	Anxiety	Resistance exercise training significantly reduced anxiety symptoms. (mean effect size 0.31, 95% CI 0.17, 0.44)
<b>Morris, L et al (2018)</b>	Exercise	Systematic review	3 studies.	Depression	Exercise resulted in significantly lower depression scores versus CBT (p=0.001)
<b>Peluso, M and Guerra de Andrade, L (2005).</b>	Exercise / physical activity	Systematic review	87 studies.	Mood and mental health	Evidence indicates that moderate exercise improves mood (or helps maintain it at high levels) while intense exercise leads to its deterioration and that these mood variations are more related to depression than anxiety.
<b>Zschucke, E et al. (2013)</b>	Exercise / physical activity	Systematic review		Various mental disorders	Clinical populations only. Preliminary evidence suggests that physical activity / exercise can induce improvements in physical, subjective and disorder-specific clinical outcomes. Potential mechanisms of action are discussed, as well as implications for psychiatric research and practice.
<b>Helgadottir, B et al. (2017)</b>	Light, moderate, vigorous exercise for 12 weeks.	RCT	620 adults, 18-67 years old.	Depression	Clinical population. At the 12 month follow up the light exercise group had significantly lower depression severity scores than the treatment as usual and moderate exercise group. The vigorous exercise group had significantly lower scores than the moderate exercise group only.
<b>Harvey, S et al (2017)</b>	Exercise	Cohort study	33,908 adults were followed for 11 years.	Depression and anxiety	Undertaking regular leisure time exercise was associated with reduced incidence of future depression but not anxiety. After adjustment for cofounders, assuming the relationships is causal, 12% of future cases of depression could have been prevented engaging in at least 1 hour each week.

<b>Olafsdottir, K et al. (2017)</b>	Exercise	Cross-sectional	15 adults aged 19 - 58 years.	Depression	Clinical population. Depression scores decreased after the 8 week exercise program.
<b>Harvey, S et al. (2010)</b>	Exercise	Cross-sectional	40,401 residents.	Anxiety and depression	Inverse relationship between the amount of leisure-time PA and case-level symptoms of depression.
<b>Deslandes, A et al. (2009)</b>	Exercise / physical activity	Literature review	32 studies.	Depression, Alzheimer's, Parkinson's.	Little evidence for a possible dose-response effect of exercise on major depression, evidence suggests that exercise is beneficial to patients with PD, especially in functional capacity and ADLs improvement. Evidence is still very limited about the effect of exercise as a protective factor in AD.
<b>Mikkelsen, K et al. (2017)</b>	Exercise	Literature review		Depression and anxiety.	Exercise improves mental well-being and is a viable preventative or adjunct treatment option for improved mental health outcomes.
<b>Rahman, MZ (2017)</b>	Physical activity	Literature review		Anxiety, Depression, Schizophrenia, ADHD, PTSD.	Clinical populations. Reduction in anxiety, SMD = -0.38, 95% CI (-0.66, -0.11). Significant reduction in depressive symptoms SMD = -0.62, 95% CI (-0.81, -0.42).

### 1.3. Injuries (adults)

Author(s) (Date)	Sport / exercise	Study type	Sample	Social Outcome(s) investigated	Findings
<b>Lauersen, J et al. (2013)</b>	Sport	Systematic review of RCTs	25 trials with 26,610 participants with 3,464 injuries.	Injuries	Strength training reduced injuries to less than 1/3 (RR 0.315 (0.207-0.480)) and overuse injuries could be reduced by physical activity programmes. (RR 0.527 (0.373 - 0.746))
<b>Grice and Conaghan (2011)</b>	Physical activity and sport	Cross-sectional	Online survey of 1,002 non-elite sport participants.	Injuries	Survey found 56% of active participants reported sustaining an injury they believed to be connected to sport or exercise. The paper explores perceptions of consequences of long term injury and care pathways
<b>Hauret, K et al. (2015)</b>	Sport and exercise	Cross-sectional	10,692 service members aged 18+.	Injuries	52% of all injuries were ESR injuries.
<b>Sheu, Y et al. (2016)</b>	Sport and recreation	Cross sectional	Data from 5,025 injury episodes, participants aged 5+.	Injuries	Males accounted for 61% of sport and recreation-related injuries with a rate of 41.2 per 1,000 people. Highest rate amongst 5-14 age group with 86.0 episodes per 1,000 for boys and 66.8 episodes per 1,000 for girls.

#### 1.4. Social Capital

Social capital is most famously associated with Putnam's seminal study of 2001. Through this and associated work the concepts of bonding, bridging and linking social capital were developed into a significant contribution to social theory and policy. Social capital is defined by Coalter (2007) as:

social networks based on social and group norms which enable people to trust and cooperate with each other and via which individuals or groups can obtain certain types of advantage.

To operationalise the concept of social capital in empirical research, through social surveys, Vencke *et al.* (2012) identified a number of survey questions. These have been validated and were adopted by Gratton *et al.* (2018) in work to value the social capital emanating from participation in sport. This is the first national, empirical valuation of the social capital benefits from sport. The survey questions in a nationally representative sample of 4,500 Australian residents included:

- three on community engagement - participation in a community project; volunteering for a local community organisation; and active membership of a local community organisation;
- one for identification with the local community;
- one for personalised trust, represented by feelings of safety when walking in the local community after dark;
- one for feelings of generalised trust with most people; and
- one for reciprocity - i.e. the extent to which people come together in the event of a serious problem in the local community.

In Gratton *et al.* (op cit) the average score for these measures is approximately 10% higher for sport participants than non-participants. To value this differential they employed the same methods as Fujiwara *et al.* (2014). This uses the survey data in an instrumental variable model which estimates the hypothetical increase in income that would be required to keep social capital at a certain level in the absence of participation in sport. This is equivalent to the value of sport participation to social capital.

#### Social Capital references

Coalter F. (2007) *A wider social role for sport: who's keeping the score?* Routledge, London and New York

Fujiwara, D., Kudrna, L. and Dolan, P. (2014). *Quantifying and valuing the wellbeing impacts of culture and sport.* DCMS, London

Gratton, C., Cuskelly, G., Toohey, K., Skinner, J., Lock, D., Kokolakis, T. and Lu, X. (2018 unpublished) *Economic value of community club-based sport in Australia.* Australian Sports Commission and Griffith University, Queensland

Putnam, R. D., (2000) *Bowling Alone: The Collapse and Revival of American Community.* Simon & Schuster, New York

Vencke, V., Peersman, W., De Maseneer, J. and Willems, S. (2012) Measuring the immeasurable? Operationalising social capital in health research, *Health*, Vol 4, 555-566

## Appendix 2: Duration, drop-off, discounting, deadweight, displacement, attribution

It is not possible to identify, for example, the average time period over which the benefit of reduced incidence for each health outcome will be realised; or to identify the time period over which investments and participation in sport has taken place. Our representation is of a reduced risk of illness in the population arising from sport participation - both the future time period during which this benefit arises and the past time period during which participation has occurred have been conflated into one year. This is, in effect, a simplifying assumption - i.e. that in any one year the input facilitates continued participation which realises continued benefit - with our one-year approach catching a year's snapshot of this dynamic process.

By estimating the SROI for one year only, there is no need to make adjustments for issues of duration (the default would be one year) and drop-off (the default would be zero during that year) - two of the more uncertain empirical dimensions to social benefits. It would also mean that discounting is not needed, because only one year's inputs, outputs and outcomes are estimated. The calculation of SROI could be refreshed in any future year by the re-calculation of inputs, outputs and outcomes.

The estimation of outputs and outcomes is designed to differentiate between those relating to sport participants and those to non-participants, the difference being the effect of sport participation. Therefore, the deadweight position is already implicit in the non-participants default case.

Because many of the empirical studies, on which the estimates of outputs and outcomes are based, are of a multivariate nature, they have already incorporated consideration of other likely contributing factors to these outputs and outcomes. Therefore, separate analyses of attribution to sport are not required.