

*A SYSTEMATIC REVIEW OF THE EVIDENCE BASE
FOR DEVELOPING A PHYSICAL ACTIVITY, SPORT AND HEALTH LEGACY
FROM THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES*

by the

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Midlands, the East of England, London and the South East.

FOREWORD

Planning our Route to a 2012 Health & Physical Activity Legacy

The 2012 Games will set a benchmark for the Olympic and Paralympic movement in staging a 'once in a lifetime' event that delivers genuine nationwide legacies and maximises the economic, social, health and environmental benefits that the Games can bring to the United Kingdom.

In order to achieve a tangible, lasting legacy across the country, we need to start now. We need to be planning, creating policy and building capacity to encourage and allow more people to get more active. We have a rare opportunity to radically change the sedentary culture, and thereby improve health, in the United Kingdom.

Regional physical activity teams in London, West Midlands, East Midlands, the East and the South East are now collaborating to drive this work forward..

This systematic review sets out the best available international evidence that will enable us to work towards securing a **true and lasting** health and physical activity legacy from the 2012 Games.

For anyone who is involved in legacy planning at local, regional or national level in the run-up to the 2012 Games, this report will stimulate discussion, aid decision making, generate ideas and positively challenge partnerships at all levels to maximise the opportunities before us.

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PREFACE

There have been one or two previous attempts to review the way in which (or indeed, whether) major sports events contribute to the development of physical activity and sport participation, or to the promotion of positive health behaviours. Such reviews have either been discussion pieces (e.g. Coalter, 2007), or have been policy briefings (e.g. London East Research Institute, 2007) or reviews (e.g. Brown and Massey, 2001) that have examined physical activity, sport and health outcomes alongside other impacts of major sports events. This review is different in two ways:

1. It is a clear and replicable *systematic review* of the worldwide literature that has used an international expert panel to help identify relevant literature from around the world. It also focuses on both outcomes and processes in seeking to assemble the 'best evidence' to inform policy and strategy.
2. The focus of this review is clearly on the Olympic Games, sports events and sports franchises. Given the general sparsity of directly relevant research evidence in this area, previous reviews have sought to apply knowledge and principles from the general physical activity, sport and health promotion and development literature to the development of physical activity, sport and health from major sports events. Our approach has been different. Where directly relevant evidence has been lacking, we have sought to assemble evidence about the processes by which the Olympic Games, sports events and sports franchises have been used to affect behaviours across a range of sectors, and to apply this to the development of physical activity, sport and health. We feel this approach maintains a clear focus on *the potential of events* to impact upon behaviours.

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EXECUTIVE SUMMARY

INTRODUCTION

It is an often quoted misrepresentation that “no previous Olympic Games has raised participation levels in sport and physical activity”. However, this is not entirely accurate in two respects. Firstly, it is true only that there has been *no evidence* collected or collated that any previous Games has raised participation (this is not the same thing as not having raised participation) and, secondly, no previous Games has employed strategies towards raising physical activity or sport participation. As such, the use of an Olympic Games to raise physical activity and sport participation has not been attempted in any real sense. Furthermore, such comments apply even more clearly to health behaviours, which, despite being vaunted by commentators as a potential benefit of the 2012 Games, have not been part of strategies or evaluations for previous Olympic Games.

Given the sparsity of literature in the area, the scope of this systematic review was extended beyond a direct consideration of the physical activity, sport and health development potential of the Olympic Games. Firstly, the scope was extended to include other major sports events (e.g. Commonwealth Games, Football World Cup) and sports franchises (e.g. Major League Baseball teams in the USA, Premier League Football teams in the UK). Secondly, underpinned by an assumption that investigating and understanding processes is important in providing lessons for future strategy, the brief was also extended to examine processes that have used the Olympic Games, sports events and sports franchises to engage communities in a range of behaviours (e.g. tourism, volunteering) that recent research suggests are adaptable for the leveraging of other behaviours such as engagement with physical activity, sport and health.

Four questions were established for the review addressing, in relation to the Olympic Games, sports events and sports franchises:

- i. OUTCOMES relating to physical activity, sport and health.

- ii. PROCESSES relating to: (a) physical activity, sport and health
(b) other sectors such as volunteering, spectating,
tourism and consumer behaviour
- iii. EVALUATION approaches used across all sectors
- iv. MEDIA strategies to leverage opportunities in all sectors

METHODS & PROTOCOL

Following filtering from initial returns of 1,778 sources, 54 sources were selected for final inclusion in the review employing recognised systematic review protocols and procedures. Each of the final 54 sources was allocated to the question to which it had primary relevance. At this stage it became apparent that the limited discussions of media that existed were embedded in substantive discussions relating to other questions, particularly iib. Consequently, question iv. on media was removed as a stand-alone question for the purposes of the analysis. There was also no usable evidence returned in relation to the direct leveraging of public health (as opposed to physical activity and sport) or of ‘active living’ or incidental physical activity from Olympic Games’, sports events and sport franchises. This was also the case in relation to any potential negative effects of sponsorship by ‘unhealthy’ organisations.

DESCRIPTION OF RESULTS

- i) *What evidence exists that the Olympic Games, sports events or sports franchises can impact upon physical activity and sport participation and upon health-related behaviours?*

The evidence in relation to this question was assessed to be generally poor, and this was acknowledged by many of the sources themselves.

The potential of facilities legacies were highlighted, particularly to impact upon participation among children and young people, but they were found to be uneven across events, with some suggestion of a negative legacy if local facilities are closed or not-funded.

There was mixed evidence for a ‘demonstration’ or ‘trickle down’ effect on participation, with this often being short-term or having been leveraged by supplemental activities. Furthermore, it was suggested that this may be an increase in frequency of existing participants rather than new participation (see iia.).

Inconclusive evidence exists relating to the role of elite success in boosting participation, although role models perceived to be a part of local communities may be more effective. However, the potential of elite sports people to deter participation because of the perceived competence gap was noted.

There was general consensus in the evidence about the need to plan supplemental activities to leverage the main event as there is clearly no direct inherent link between elite events and community participation in physical activity.

Community and social capital were reported as being potentially important, empowering communities and improving individual and collective self-efficacy, which may over time contribute to behaviour change.

The evidence suggests that sporting events are one of multiple factors, that are not well understood, that collectively impact upon behaviour in physical activity, sport and health.

ii) *By what processes have physical activity and sport participation and health-related behaviours been leveraged from the Olympic Games, sports events or sports franchises?*

The quality of the evidence returned for this question was reasonable, although in places tangential to the question.

The sources suggested that if the population holds negative perceptions of, or attitudes towards, a major sport event, the potential to use such an event for the development of physical activity or sport, or the promotion of health (or indeed for any other purpose) is likely to be considerably reduced, if not negated.

There was some limited evidence that prior participation in, or experience of, physical activity and sport predicts current and future participation. This is something that has long been reported in the

wider exercise and sport psychology literature, however isolated evidence suggests that past behaviour predicts engagement in or with sport or health behaviours in a sport event context.

Evidence from several sources suggests that the assumption that the process by which major events engage *non-participants* in physical activity and sport is a 'demonstration' or 'trickle-down' effect is likely to be flawed. However, it does appear that the demonstration effect has the potential to increase sport participation frequency.

Isolated anecdotal evidence was found that the presence in a forthcoming major event of new or unusual sports or activities can lead to a widening of the range of sports played, particularly among young people in schools.

There was a clear suggestion that there is a staged process of engagement with physical activity and/or sport through major events.

iib) *What processes that have been used to leverage, inter alia, volunteering, community engagement and tourism from the Olympic Games, sports events and sports franchises might inform leveraging strategies for physical activity, sport and health?*

Overall the quality of evidence returned for this question was good, largely because the scope of the question is broader.

Wider evidence from research on the social and the economic impacts of sports events and franchises, on event tourism and on community reactions to events supported the suggestion (under question ii.) that positive perceptions of, or attitudes towards, major events are an important foundation for using such events to develop physical activity, sport or health.

A wide range of sources highlighted the importance of festival in creating the perception that a significant event is taking place. Festival, and the communality or 'communitas' that it engenders, creates in people a desire, if not an urge, to participate in some way, and that this desire is stronger if the event is perceived to be bigger than and beyond sport. The significance of this 'festival effect' for this review is that the desire to participate might be satisfied by

related initiatives involving physical activity, particularly in the community.

There is further evidence (reinforcing that presented under question iia.) suggesting that prior experience of volunteering, of participation, or of a destination predicts future engagement via sports events.

Evidence from volunteering, tourism and consumer behaviour reinforces the suggestion that the process of engagement with physical activity, sport and health behaviours through sport events occurs through a number of stages. Various models, including the Transtheoretical model, can be used to illustrate this.

iii) *How has the leveraging of a range of opportunities from Olympic Games, sports events and sports franchises been evaluated?*

Given the broader scope of this question in accessing generic evaluations of sports events and franchises, the quality of the sources returned is higher than for some of the other questions.

The evidence highlighted four key issues in relation to attributions and measurement: the first related to the extent to which evaluations can isolate the generation of impacts to the event; the second related to the problems in establishing baseline measures for any long term evaluation; the third related to accounting for opportunity costs; and the fourth related to a range of common errors and misrepresentations in evaluations, which were highlighted.

Impacts of previous Games have often been presented in an aggregated way which can obscure or obfuscate the detail of impacts, and the impacts on particular sectors, such as physical activity, sport and health.

It was suggested by the evidence that negative and neutral aspects of legacy are not often considered, that 'pregnancy' or pre-event effects are not considered, and that unplanned and 'aversion' aspects are rarely considered.

Political will is an important aspect in the success of events and should be evaluated, both in terms of the extent to which it might

lead to additional resources for particular sectors, and in terms of the potential for political influence to compromise evaluations.

INTERPRETATION OF IMPLICATIONS FOR THE 2012 GAMES

Evidence directly relevant to the issue of developing a physical activity, sport and health legacy from the Olympic Games, sport events and sports franchises remains sparse, with the evidence from other sectors generally being more developed and of better quality. As such, there is a relevance/quality trade-off. However, notwithstanding this context, the interpretation of the implications of the review results for the development of strategy in relation to the 2012 Games is derived from the *best evidence* available.

In developing a physical activity, sport and health legacy from the 2012 Games:

1. All legacies must be leveraged and therefore planning for a physical activity, sport and health legacy must be part of an integrated legacy strategy to include community and educational programmes, opportunities for coaching and well-planned, accessible facilities which serve an existing need.
2. Community support for the hosting of the 2012 Games is a necessary pre-condition for the effectiveness of any programmes or initiatives seeking to promote physical activity, sport or health through the 2012 Games.
3. There are a number of factors that may be leveragable through the 2012 Games, and a number that are not related to the Games, that may collectively impact upon physical activity, sport and health behaviours in an uneven way for different groups.
4. The 2012 Games has the potential to contribute to moving people between stages of engagement with physical activity and sport. While it is possible that this potential may be realised at a number of stages, the most effective and efficient use of resources is likely to be obtained by focussing on two distinct areas:
 - I. *FOR SPORT*: The 2012 Games is likely to be most effective at raising participation frequency in sport and the most formal

physical activities among current or lapsed participants who are already positively engaged with sport.

- II. *FOR PHYSICAL ACTIVITY*: The 2012 Games may have the most potential to stimulate contemplation of physical activity (rather than sport), particularly in the community, among non-participants (pre-contemplators).
5. The promotion of physical activity (or very informal sport-related activities) through the 2012 Games among the least active will be most effectively supported by promoting the 2012 Games as a significant national celebration that transcends sport and is relevant to local (or cultural) communities, with benefits of participation linked to community participation rather than health. In short, by leveraging a 'festival effect'.

In evaluating the 2012 Games' physical activity sport and health legacies:

1. Structural or macro-level measures cannot attribute changes in physical activity, sport and health behaviours to the 2012 Games.
2. Previous Games have resorted to composite generic measures of social impact, supplemented by anecdote, which obscure the lack of evidence of effects on specific sectors such as physical activity, sport and health.
3. An evaluation of the physical activity, sport and health legacy of the 2012 Games should:
 - I. Allow for the disaggregation and separate presentation of outcomes for physical activity, sport and health
 - II. Use prior (pre-Olympic) long-term plans to establish a baseline 'without Olympic Games' case
 - III. Focus on 'added value' (attributable change)
 - IV. Match added value to the leveraging strategies that generate it
 - V. Evaluate 'net' rather than 'gross' effects
 - VI. Account for the impact of political will

CONCLUSIONS

The over-riding conclusion of this review is that the direct evidence base to inform the development of physical activity, sport and health legacies from the 2012 Games is poor. Therefore there is a clear need for more sustained research and more robust evaluation to inform the development of such legacies. However, in seeking to make the best use of low quality evidence from the physical activity, sport and health sector, or evidence that has been transferred from other sectors, albeit of better quality, the following conclusions can be drawn.

- The 2012 Games (or any major sports event or sport franchise) is not a magic bullet to raise participation in physical activity and sport, or to encourage positive health behaviours. Undoubtedly, if leveraged, the 2012 Games can contribute, but as part of wider physical activity and sport participation initiatives and within the wider 2012 legacy effort.
- There is some limited evidence from the physical activity, sport and health sectors that the 2012 Games, subject to caveats, *may have the potential* to contribute to increasing the frequency of participation in sport of existing participants, or to rekindling interest in lapsed sport participants, through a *demonstration effect*.
- The application of evidence from other sectors to physical activity, sport and health suggests that the 2012 Games, subject to caveats, *may have the potential* to contribute to stimulating the contemplation of physical activity or the most informal sport-related activities, particularly those that are community-based, among those who have not previously contemplated participation (pre-contemplators) through a *festival effect*.

The processes in relation to the latter two target groups (the demonstration effect and the festival effect respectively) are entirely different, and must not be conflated or confused.

RECOMMENDATIONS

For all Stakeholders

- Legacy plans for physical activity, sport and health must be integrated with the wider legacy effort.
- The processes and outcomes of the 2012 Games physical activity, sport and health legacy effort must be evaluated contemporaneously from the start.
- It must be recognised that the development of a physical activity, sport and health legacy is not a 'one-size-fits-all' programme, and to promote it as such is likely to undermine efforts targeted at particular groups.

For Government, LOCOG and National-Level Olympic Stakeholders

- Attention must be directed to putting forward a convincing case to the British public for the hosting of the 2012 Games in London, and for the pregnancy and legacy benefits of doing so.
- The 2012 Games must be consistently promoted as a significant national festival that is bigger than and beyond sport. This will reinforce the 'festival effect' and contribute to the possibilities of more expansive 'event-themed' (rather than 'event-led') strategies and initiatives in regions outside London.

For Stakeholders in the Physical Activity, Sport and Health Sectors

- Programmes and initiatives must be 'stage-matched' to current levels of engagement with physical activity, sport and health-related behaviours. Initiatives that seek to increase sport participation frequency among those already positively engaged with sport (through a demonstration effect) and that seek to encourage the contemplation of physical activity or the most informal sport-related activities among non-participants (through a festival effect) are likely to be the most effective.
- Programmes and initiatives relating to or incorporating the 2012 Games must be integrated with wider physical activity, sport and health programmes and with existing needs and policy goals.

For Regional Stakeholders

- Opportunities should be identified to incorporate physical activity, sport and health legacy goals into wider 2012 legacy activities.

- Regional resources (physical, human and economic) that can provide a local dimension to the national festival should be identified, and programmes to capitalise on such resources promoted.

For Local Stakeholders

- Local physical activity, sport and health legacy programmes, events and initiatives must tap into the feeling of ‘national significance’ but ensure that they remain relevant to local communities.
- Opportunities should be identified to locally leverage the ‘festival effect’ on non-participants.

1) INTRODUCTION

1.1) Researching Olympic Legacies

The trend in conducting assessments or evaluations of sports events in general, and the Olympic and Paralympic Games in particular, is to move beyond a straightforward focus on impacts to consider opportunities that can be “leveraged” (Chalip, 2004; Chalip and Leyns, 2002). Unlike impact assessments, the study of leverage has a strategic and tactical focus. The objective is to identify the strategies and tactics that can be implemented prior to and during an event in order to generate particular outcomes. Consequently, a leveraging approach implies a much more pro-active approach to capitalising on opportunities, which focuses on *processes*, rather than impacts research which simply measures *outcomes*. Like much of the previous research on the Olympic Games and other sports events, this debate about the need for a leveraging focus has largely taken place in relation to economic issues. However, recent work has suggested that these processes are transferable (Chalip, 2006) and, as such, discussions are now being extended to incorporate a social dimension.

The significance of social, cultural and health opportunities related to major events such as the Olympic Games is that, unlike the majority of economic opportunities, they need not be limited to the host city (although their potential to spread more widely is related to the size of the event). As such, unlike potential economic opportunities, for which there is a clear *stratified geography* (i.e. a differentiation of impact according to geographical region and scale) (Weed, 2008), social, cultural and health opportunities need not be lessened by distance from the host city if effective leveraging strategies are employed.

It is an often quoted misrepresentation that “no previous Olympic Games has raised participation levels in sport and physical activity”. However, this is not entirely accurate in two respects. Firstly, it is true only that there has been *no evidence* collected or collated that any previous Games has raised participation (this is not the same thing as

not having raised participation) and, secondly, no previous Games has employed strategies towards raising physical activity or sport participation. As such, the use of an Olympic Games to raise physical activity and sport participation has not been attempted in any real sense. Furthermore, such comments apply even more clearly to health behaviours, which, despite being vaunted by commentators as a potential benefit of the 2012 Games, have not been part of strategies or evaluations for previous Olympic Games.

There is, however, an “illusion” of a research base in this area. Two Health Impact Assessments, in London (LHC/LDA, 2004) and the North East (NEPHO, 2006), of the health-related potential of the 2012 Games suggest that there is some relevant evidence. However, each of these reports is largely based on the opinions of health experts at round tables and workshops rather than any empirical evidence base. Consequently their conclusions are prefaced by statements such as “hosting the Games is thought to...” (LHC/LDA, 2004) or the Games “could result in increased interest in sports” and “could have a health benefit for the North East” (NEPHO, 2006). Similarly, Coalter’s (2004) contribution to the IPPR/Demos publication, *After the Gold Rush* is a discussion of intents, potential models and possibilities as, again, there is no evidence base. This leads Coalter (2004) to conclude that potential positive outcomes for sport participation are likely to be the result of “complex and not well understood interactions”. This reinforces the recent conclusions of Murphy and Bauman (2007) that the “health potential of major sporting and physical activity events is often cited, but evidence for public health benefit is lacking”.

1.2) Scope of the Review

As background to a systematic review of the evidence base for developing a physical activity, sport and health participation legacy from the 2012 Games, the above is not promising. As such, it was clear that a straightforward search for evidence relating to the impact of the Olympic and Paralympic Games on physical activity and sport participation and on health-related behaviours would return limited findings. This is for two reasons: firstly, as noted above, no previous

Games has attempted this, and as such the reasons for a lack of evidence are simply likely to be that no strategies (or even aims or goals) have been in place to raise participation and/or change behaviour. Secondly, Sydney is the only Olympic Games in relation to which any real evaluation of non-economic impacts has taken place. Other Games have been either too commercially focussed (e.g. Atlanta), too disorganised (e.g. Athens) or based in a country with an incomparable social and economic system (e.g. Beijing), to be likely to yield much usable evidence. Similarly, the volume of evidence available from other major sports events (e.g. Commonwealth Games, World Championships and high profile events such as the Tour de France) was also likely to be limited.

Consequently, in order to ensure that the review could draw conclusions other than a call that more research is needed, the scope of the review was extended. Firstly, the brief was extended to include sports “franchises” (e.g. Major League Baseball teams in the USA, Premier League Football teams in the UK), as some research suggests (Sparvero and Chalip, 2007) that such franchises can be highly successful in engaging local communities and interested constituencies¹. Secondly, given the general focus on a leveraging approach, which assumes that investigating and understanding processes is important in providing lessons for future strategy, the brief was also extended to examine processes that have used the Olympic Games, sports events and sports franchises to engage communities and constituencies in a range of behaviours (e.g. tourism, volunteering) that recent research suggests are adaptable (O’Brien and Chalip, 2007) for the leveraging of other behaviours such as engagement with physical activity, sport and health. The extension of the scope of the review to include an examination of *both* outcomes and processes was identified as the most likely route to providing the *best evidence* (Cook, Mulrow and Haynes, 1997; Tranfield, Denyer and

¹ Here we are using communities to refer to groups in reachable geographical locations, and constituencies to refer to those that might have an interest in the event or franchise and thus that may be reachable regardless of geographical location.

Smart, 2003) to inform strategy and policy as opposed to a narrower, more traditional review that would focus solely on outcomes.

Key to understanding the processes that might be used to engage communities and constituencies, and to ensuring that the right lessons are learned, is an understanding of the way in which such processes have been evaluated. Again, the review was designed to examine the evaluation of leveraging processes in relation to a range of behaviours (not just physical activity, sport and health) to provide the best evidence for developing strategy. Finally, the role of promotional strategies, including those of sponsors, and the ways in which the media are engaged and utilised to support such processes and strategies have proven to be a key issue in the successful leveraging of the Olympic Games, sports events and sports franchises (Green, 2001; Green Costa and Chalip, 2003), and the review incorporated an examination of the evidence base in this respect.

Four questions were therefore established for the review:

i) What evidence exists that the Olympic Games, sports events or sports franchises can impact upon physical activity and sport participation and upon health-related behaviours?

The purpose of this question was to access *outcomes* – specifically, what evidence exists on the impact (positive or negative, short-term or long-term) on physical activity, sport and health behaviours.

ii) By what processes have physical activity and sport participation and health-related behaviours been leveraged from the Olympic Games, sports events or sports franchises?

iib) What processes that have been used to leverage, inter alia, volunteering, community engagement and tourism from the Olympic Games, sports events and sports franchises might inform leveraging strategies for physical activity, sport and health?

These questions relate to *processes*, and were the central questions to inform strategy. They were included to explore the evidence base of processes employed both in relation to physical activity, sport and

health behaviours and in relation to the broader engagement of communities and constituencies.

iii) How has the leveraging of a range of opportunities from Olympic Games, sports events and sports franchises been evaluated?

In supporting iia) and iib) above, this question was included to help examine the quality of the evidence returned and assist in developing an evaluation approach in relation to the 2012 Games.

iv) What promotional and media strategies best facilitate the leveraging of opportunities from Olympic Games, sports events and sports franchises?

This question was included to examine evidence on the central role of the media in the success or otherwise of leveraging strategies and processes.

2) METHODS AND PROTOCOL

2.1) The Systematic Review Procedure

There has been an increasing interest in collating evidence to inform policy in recent years, and increasingly the traditional literature review is being seen as inadequate in accessing the 'best-evidence' for policy decisions. In 2001 the ESRC funded the establishment of an 'Evidence Network' dedicated to the improvement of the evidence base for policy and practice in the social sciences. This Evidence Network has promoted and developed the use of the Systematic Review procedure to collate research evidence and inform policy development, and it is this procedure that has been used to search, analyse and synthesise the evidence base for developing a physical activity, sport and health participation legacy from the 2012 Games.

The systematic review procedure differs from a traditional narrative literature review as it explicitly focuses on an objective, replicable, systematic and comprehensive search of literature and research evidence, and includes a transparent audit trail of methods and processes (Coren and Fisher, 2006). As such it has been seen by organisations such as NICE (National Institute for Clinical Excellence) and the ESRC as providing a more comprehensive and transparent method for assembling the 'best evidence' to inform policy than traditional reviews of literature.

Systematic review may utilise an expert or stakeholder panel to advise on protocols and search criteria for a particular area of study, and may consult the panel on criteria to assess the quality of the research reviewed. More recent approaches to systematic review have extended the role of the panel to provide 'Delphi'-type expert input that assists in identifying sources of 'grey' literature that might not be readily apparent through a search of peer-reviewed material. In fact, the incorporation of 'grey' literature, such as conference papers, discussion documents and a range of other unpublished materials, into the systematic review process has been one of the major reasons for its widespread adoption in informing policy development in areas

as diverse as urban regeneration, housing, social care, criminal justice, and education, and is a standard part of the process that ensures biases are reduced within systematic reviews (Lefebvre & Clarke, 2001)

In the field of sport, recreation and health, the systematic review procedure has been widely used in assessing evidence in relation to health policy and exercise take-up and adherence (e.g., Biddle, Wang, Kavussanu, and Spray, 2003; Hausenblas and Symons Downs, 2002) and sport and leisure participation and policy (e.g. Bailey *et al*, 2005; Weed, 2006).

The rigorous and extensive search criteria adopted in the systematic review procedure, alongside the comprehensiveness and quality control ensured by both the systematic review panel and the review process itself, means that it is a highly relevant and appropriate procedure to use in assessing the evidence base in relation to leveraging physical activity and sport participation, health-related behaviours and the wider engagement of communities and constituencies from the Olympic Games, sports events and sports franchises.

2.2) The Systematic Review of Physical Activity, Sport and Health Legacies

The systematic review of the evidence base for developing a physical activity, sport and health participation legacy from the 2012 Games commenced with the first meeting of the systematic review panel (the SPEAR Panel). This meeting outlined initial scoping searches to explore the most fruitful search terms and databases. This initial exploratory work can be quite “messy”, and its focus is threefold:

- (1) To conduct experimental searches in a range of databases to identify which will be most useful in returning relevant research.
- (2) To conduct a wide range of experimental searches with a wide range of keyword combinations to establish which will be the most productive in returning relevant returns.
- (3) To identify key sources of “grey” literature.

In respect of (1) and (2), this process involves conducting searches which often have very high returns (up to 15,000 sources). These returns are then “sampled” (e.g., every 10th return is examined) and assessed for relevance. The sample is also “mined” for keywords in an attempt to examine those that are most relevant and widely-used in the literature. Some of these exploratory searches also have very low returns (sometimes in single figures), thus also highlighting which keywords and keyword combinations are too restricting. Essentially, this is a process of trial and error to refine an effective search strategy (see for example, Petticrew and Roberts, 2006).

This exploratory process enabled further meetings of the SPEAR Panel to establish the formal protocol and search strategy, on which an International Panel of experts on Olympic and sport event related research was consulted². The databases identified as returning the most relevant material, and thus included in the formal searches, were:

- SPORTS DISCUS (Sport, Exercise, Leisure and Tourism)
- CINAHL (Health Care)
- PsychINFO (Psychology)
- MEDLINE (Academic and Public Sector Medical Research)
- Web of Knowledge (General Science and Social Science Database)

With some slight modifications for the specific databases (e.g., the word “sport” was removed from the search terms for SPORTS DISCUS – so “sport* event*” became “event*”) ³, the following is the primary search used across these databases:

(olympi* OR paralympi* OR game* OR sport* event* OR sport*
franchise*
OR sport* team*)
AND
(benefit* OR impact* OR participat* OR opportunit* OR lever* OR

² See Appendix A for the composition of the international panel

³ The * symbol is a wildcard so, for example, “promotion*” will pick up “promotion”, “promotions”, and “promotional”

promotion*)
AND
(communit*OR volunt* OR touris* OR social inclu* OR social exclu*
OR
disadvantage* OR disengage* OR health*)

Once duplicates across the databases were removed, this search returned 1,778 sources, and this was reduced to 296 sources following sifting by members of the SPEAR team and the removal of obviously irrelevant material on the basis of article titles.

The 296 sources remaining were initially reviewed by the SPEAR Panel on the basis of titles and abstracts to assess whether it appeared that any significant papers or bodies of literature were missing. At this stage the purpose was not to reduce the numbers further, but to ensure that all relevant material was captured and to identify the need for further searches. Following the review by the SPEAR Panel, we consulted the International Panel on the same issues. Both Panels considered the 296 titles and abstracts in relation to the four review questions.

The feedback from both the SPEAR and International Panels was that the 296 sources represented a good coverage of the research literature. However a number of suggestions for further sources of evidence were made, particularly sources of grey literature such as Pre-Olympic Scientific Congresses, bibliographies such as those at the University of Technology Sydney and the LA84 Foundation, peer-reviewed journals that were not indexed in the databases, and specific suggestions for individual papers.

In addition to the above suggestions, the SPEAR panel had also identified at its early meetings potential sources of 'grey literature', including Associations (e.g. the European Association for Sport Management, the Australian and New Zealand Association for Leisure Studies, the International Council for Health, Sport Science and Physical Education), research institutions and centres (e.g. the Centre d'Estudis Olímpics at the Universitat Autònoma de Barcelona, the

International Olympic Academy at Olympia in Greece, the London East Research Institute at the University of East London) and libraries, bibliographies and archives (e.g. the International Olympic Committee Archives and Library in Lausanne at which one of the SPEAR team was based during the summer of 2008). Searches of and contacts with these sources of grey literature were ongoing throughout the project, with full text sources being retrieved where possible.

Following the consultations of the Panels on the comprehensiveness of the 296 sources identified through the electronic searches, the abstracts of these sources were independently assessed by three SPEAR Panel members to identify which were the most significant for full-text retrieval on the basis of relevance to one or more of the four review questions. The consolidation of the views of the three Panel members resulted in a list of 112 sources identified for full-text retrieval, to which were added a further 19 sources identified through the grey literature search. Eight of the 112 electronic sources were irretrievable, resulting in a set of 123 full-text sources. These sources were reviewed for relevance by two SPEAR Panel members and a further 69 were excluded. The final number of sources included in the review was therefore 54, each of which was allocated to the question to which it had primary relevance for the initial quality appraisal and analysis. This allocation was as follows:

<i>i) What evidence exists that the Olympic Games, sports events or sports franchises can impact upon physical activity and sport participation and upon health-related behaviours?</i>	11
<i>ii) a) By what processes have physical activity and sport participation and health-related behaviours been leveraged from the Olympic Games, sports events or sports franchises</i>	(10) 36
<i>b) What processes that have been used to leverage, inter alia, volunteering, community engagement and tourism from the Olympic Games, sports events and sports franchises might inform leveraging strategies for physical activity, sport and health?</i>	(26) 7

iii) How has the leveraging of a range of opportunities from Olympic Games, sports events and sports franchises been evaluated?

0

iv) What promotional and media strategies best facilitate the leveraging of opportunities from Olympic Games, sports events and sports franchises?

Some comment is required on the lack of any sources addressing question iv), which focuses on media strategies. In allocating the sources returned to particular questions, there were a number of sources that discussed media strategies. However, such discussions were embedded in substantive discussions relevant to other questions. As such, the decision was taken to examine media strategies within their substantive context (i.e., within the analysis of questions i, iia, iib and iii, but particularly iib) rather than as a stand-alone question. Therefore, the section 3 (Description of Results) does not separately examine question iv).

It is also worth noting that there was virtually no usable evidence returned in relation to the direct leveraging of public health (as opposed to physical activity and sport) and, as such, the emphasis of much of the report is on physical activity and sport rather than health. This emphasis is furthered by the lack of any evidence, both in relation to the leveraging of 'active living' or incidental physical activity from Olympic Games', sports events and sport franchises, and in relation to any potential negative effects of sponsorship by 'unhealthy' organisations.

The final 53 included studies were appraised for quality and the weight they should be given in the synthesis. The field is under researched and the evidence is known to be weak as discussed in the introduction. It was therefore decided to take a rudimentary approach to the quality appraisal, appraising only the following fields rather than the comprehensive approach to appraising quality of the conduct of studies normally recommended (e.g. Coren and Fisher, 2006). The fields assessed were: relevance to question, location and relevance to

the UK, whether the report was based on structured, transparent and replicable enquiry, whether the design was appropriate to the question, and some ethical questions. The pro forma used for this process for all included studies, is included as Appendix B. Summary quality appraisal tables for each question are included in section 3 (Description of Results) and the results discussed within the text of each section.

While it was initially envisaged that it might have been possible to conduct a statistical analyses of some of the data, the vast majority of sources returned were qualitative or discursive, and as such a form of inductive thematic analysis has been used (Braun and Clarke, 2006). For each question, the studies were initially read collectively to identify between 10 and 20 *descriptive* themes that emerge across studies. These descriptive themes were then integrated to develop four to six higher order *conceptual* themes which were subsequently used as a framework to analyse the evidence in respect of the particular review question. In both developing the higher order conceptual themes from the descriptive themes, and in using the conceptual themes to conduct the analysis, attention has been paid to the weight that might be given to particular bodies of evidence and perspectives on both quality and relevance grounds. The product of this analysis is a *narrative synthesis* (Pope and Mays, 2006) which 'tells the story' of the research returned in thematic and substantive terms.

The following two sections comprise the substantive description (section 3) and interpretation (section 4) of the results from this review. The descriptions in Section 3 are principally based upon the evidence returned in relation to each question, whereas the interpretations of the implications of the results in Section 4 suggest the potential ways in which the results might be applied to the development of a physical activity, sport and health legacy from the 2012 Games.

3) DESCRIPTION OF RESULTS

3.1) Question i) – Outcomes

- *What evidence exists that the Olympic Games, sports events or sports franchises can impact upon physical activity and sport participation and upon health-related behaviours?*

There were 11 sources returned for question i. The inductive thematic analysis initially led to the emergence of 14 themes, with the following 6 consolidated higher order themes being used to structure the analysis that follows:

- Poor Quality of Evidence
- Facilities Legacy
- Increased Participation
- The Role of Local Elite Success
- Advanced Planning of Supplemental Activity
- Other Health Benefits

Firstly, however, the text of section 3.1.1 describes the quality appraisal of the 11 sources returned.

3.1.1) Quality Appraisal

Table 3.1 summarises the quality appraisal of the sources included for question i. Overall quality is poor given that the majority of reports are not the product of structured enquiry, or based on systematically collected data. Furthermore, they are mostly not transparent or replicable due to poor reporting of methods. In addition much of the included material consists of reviews of secondary literature, rather than representing primary sources in themselves.

Only 5 of the 11 included sources were based on some kind of structured enquiry (Newby, 2003; Hindson et al, 1994; Murphy and Bauman, 2007; Wang and Theodoraki, 2007; EdComs, 2007) and two (Wang and Theodoraki, 2007; Healthier Communities, 2003) were

assessed as not fully relevant to the review due to the focus of the report. The London East Research Institute (2007) study, conducted as part of the London bid, appeared thorough, drawing on the legacies of preceding games, but presented no methodology so cannot be described as systematic or structured. However this report, as well as EdComs (2007), also for the London bid, seemed to cover much of the existing evidence and contributes a great deal of the available evidence for the debates at hand.

Of the 11 studies, 6 were conducted outside the UK. Whilst of course they are relevant to this review, as they focus on major sporting events, not all can be seen as generalisable to the UK in view of the different cultural, economic and political contexts in which they take place.

Study no.	UK Based?	Field relevant to OHL?	Field	Aims relevant to OHL?	Findings relevant to OHL?	Structured enquiry?	Transparent and replicable?	Design appropriate to question	If not structured then what?	Informed consent obtained?	Representatives of population involved in design and steering	Ethical problems?
Newby (2003)	Yes, East Manchester	Yes	Sports events	Yes	Yes	Yes	Unclear	Unclear	Non-systematic secondary review/analysis. Collection of data on impact of Commonwealth games inc local consultation.	NA	NA	
EdComs (2007)	Yes	Yes	Sports events	Yes	Yes	Yes	No	Unclear	Policy briefing/debate. Appears to be a fairly systematic overview of existing literature.	NA	NA	NA
Villalbi <i>et al</i> (1994)	No, Barcelona	Yes	Sports events	Yes	Yes	Unclear	No	Unclear	Evaluation report but unclear method	Unclear	No	
Hindson <i>et al</i> (1994)	No, New Zealand	Yes	Sports events	Yes	Yes	Yes	Unclear, uneven response rate & conclusions hypothesise reasons for findings rather than being based on data	Yes		Unclear	No	
Coalter (2007)	Yes	Yes	Sports events	Yes								
VANOC (2007)	No, US/Canada	Yes	Sports events	Yes	Yes	Unclear	Unclear	Unclear	Unclear	No	No	
Sport and Recreation Victoria (2006)	No, Australia	Yes	Sports events	Yes	Yes	No, feedback from large evaluation	No, brief methods included	Yes	Report	No	No	
Murphy & Bauman (2007)	No, Australia	Yes	Sports events	Yes		Yes, systematic review	Yes, reasonably	Yes		NA	NA	
Wang & Theodoraki (2007)	No, China	Yes	Sports events	Unclear, more about political & cultural context	Unclear, context so	Yes	Unclear	Yes		Unclear	Unclear	
Healthier Communities	Yes	Yes	Sports events, NW				No	Unclear	Policy briefing/debate -	NA	NA	NA

Table 3.1: Summary of Quality Appraisal of the Sources Included for Question i.

It is clear from section 3.1.2 (see below) that the low quality of evidence is recognized within the field and one of the findings of this review should be a recommendation for more robust evaluation of some of the phenomena under discussion as part of event planning (this is discussed further in section 3.3 which deals with event evaluation).

A further quality issue that affects this question is that the topic is relatively under-researched and thus limited in scope. One of the consequences of this is that several of the reports included here are in fact drawing on the same group of primary sources. There is therefore some overlap between the findings of reports based on the same data. One consequence of this for a systematic review is that it can lead to over-emphasis of some elements of the data.

The reports where there was no apparent structured enquiry and therefore the poorest quality for the purposes of this analysis are: Villalbi et al (1994), VANOC (2007), Healthier Communities (2003), and London East Research Institute, (2007). The others are of mixed quality with none of sufficient transparency and replicability to be described as very high quality. Therefore the findings reported here should be treated with some caution until more robust data is available that support the themes and patterns identified.

3.1.2) Poor Quality of Evidence

Reinforcing the issues noted in the review quality appraisal section (3.1.1), a number of reports identify the poor quality of the available evidence in this field. A fundamental issue identified by London East Research Institute (2007) indicated a key problem with the quality of the evidence for Olympic legacies, which is the clear lack of consensual definitions in this area, for example, the meaning of the term 'sport participation' has several definitions.

It is noted in one report (EdComs, 2007) that there is no robust evidence to show a link between the positive effects on a community of hosting a major sporting event such as the Olympic Games, but also

no evidence of negative effects either, thus reinforcing the comments in the introduction (section 1). EdComs (2007) highlight that there are a variety of different methodologies used to measure the impact that hosting a major sporting event can have on a community. As a result, the consequent trends or findings can lack clarity. The gap as articulated by EdComs (2007) is described as a need for long-term planned evaluation with clear definitions, involving the collection of baseline data, qualitative and quantitative evidence and stratification of data, all of which should be set against general trends in sporting participation. Our current experience of conducting this present piece of work can only concur with this.

Healthier Communities (2003) described a number of programmes targeted at various populations (e.g., ethnic minority groups and those with disabilities), adjunctive to the Manchester Commonwealth Games. It reports planning and spending, but does not evaluate the impact of the programmes. The relevance of this study is therefore difficult to assess as it reports the development of a range of programmes rather than evaluating them. Similarly, Murphy and Bauman (2007) note the lack of coordinated evaluation as part of public health initiatives.

London East Research Institute (2007) further suggests that the effects of elite sporting events on community participation are complex to assess, and notes that there is a lack of a trustworthy method for doing so despite the potentially testable benefits of hosting such an event.

It is suggested that the lack of well conducted evaluation applies equally to specific health promotion events. The example is given in Murphy and Bauman (2007) of 'walk to work day' in Australia and similar initiatives in Canada and Switzerland. Murphy and Bauman (2007) note that long term benefits have been shown from such initiatives but robust evaluation is needed for this to be appropriately documented.

3.1.3) Facilities Legacy

A number of reports found that major sporting events increased the number of available venues and this was followed by an increase in the public use of them. These phenomena are referred to as the 'facilities legacy'. A report in Manchester following the Commonwealth Games and the development of Sports Action Zone status found from a neighbourhood survey that there was increase in both access and usage comparing 1999 and 2002 (Newby, 2003; London East Research Institute, 2007). This does not reflect a clear trend for all events however, as neither the Sheffield nor Sydney experiences bore this out. It is particularly noted that for this effect to occur, the facilities need to be located in a convenient place and targeted to an appropriate audience (EdComs, 2007). An alternate experience is that the cost and lack of public access to some facilities, together with lack of time, might inhibit usage, with similar barriers operating to those in effect for spectating. A MORI poll (quoted in EdComs, 2007) found the local impact to be more related to economics and infrastructure rather than participation as such. This is also reflected in EdComs (2007) wider findings and in Murphy & Bauman (2007).

However, it was also noted in Manchester that there can be a negative impact of major events on local facilities. Examples given were the closure of a local swimming pool and also that hoped for funding was not allocated locally for facilities for which a local survey had identified a need, such as a community based multi-use centre (Newby, 2003). EdComs (2007) noted a concern expressed in their included references that investment in major events may divert money from existing local initiatives. This was also noted by Coalter (2007) where it was suggested that big events may be counterproductive to grass roots participation as they divert funds from grass roots investment.

Specific populations

VANOC (2007) showed that following the Winter Olympics in Canada, there was an increase in fitness activity and use of facilities, especially by children, although this may relate to specific provision of activities and organised use of facilities through schools, local junior athletics teams and youth clubs. Similarly, Newby (2003) suggests that targeted

programmes for schools can be effective and, indeed, found a higher level of participation in schools close to the Olympic venue, bearing out the point made earlier in this section about the importance of convenience.

3.1.4) Evidence for Increased Physical Activity Participation

The London East Research Institute (2007) note, drawing on data from the Barcelona Olympics, that there was an increased participation in physical activity, but the evidence in that instance is drawn from comparing two different reports conducted in 1985 and 1995 respectively. Of course, where reports are conducted at different times, with different designs for different purposes, they may not be comparable. The study also found that in this instance the proportion of the population involved in physical activity had increased. However, it goes on to say, as noted elsewhere in this report, that this is likely to be due to a range of causal factors of which the Olympics was one (see discussions of the use of macro-level data in section 3.3.2).

Conversely, EdComs (2007) found no clear evidence that hosting events encourages participation in physical activity though it is suggested that there may be short term gains. EdComs (2007) suggest that what is needed is a broader strategy accounting for the multiple complexities of patterns of influences on behaviour.

Hindson et al (1994), assessed the views of New Zealand sports clubs, of which 15 out of 35 felt that the 1992 Olympics had an effect on clubs/club membership. Having said this, the report also found that few of the clubs had incorporated the event into their marketing strategy. Sport and Recreation Victoria (2006), reported that 59% of the participants in the Sydney 'warm up event' were club members as there had been a big role of clubs in recruitment and marketing for the event, but despite this the event seemed to precipitate an overall increase in club activity.

It is suggested that in New Zealand, non-Olympic elite events may more effectively increase participation because of better TV coverage

of New Zealand participation in such events and also because such events are more focused on particular sports, so fans watch and the sport is promoted (Hindson et al, 1994). Presumably however, this suggestion reflects the possibility that increases in participation detected may in actual fact be increases in the frequency of participation of existing participants, rather than demonstrating an increase in the overall number of participants (see section 3.2.1.4 which suggests that this is the more likely result of any 'demonstration or 'trickle-down' effect).

There is some anecdotal evidence quoted in VANOC (2007), that some Canadian and US providers of sports facilities noted a 'spike' in participation around the Games, although there was no evidence from Sydney that the 'euphoria' of the Olympics turned into increased activity afterwards despite a great deal of 'rhetoric' (Murphy & Bauman, 2007).

So evidence for an *inherent* 'demonstration' or 'trickle down' effect is mixed. In Canada there seemed to be effects demonstrated but there were surrounding initiatives that are likely to have contributed to this, above and beyond the impact of the event itself (VANOC, 2007). Coalter (2007), cites minimal evidence overall and, similar to the previous report, suggests that effects appear dependent on broader factors and surrounding initiatives.

Hindson et al (1994), conclude that trickle down benefits are not automatic, particularly as the national organisations approached were unable to identify tangible benefits. EdComs (2007) also noted that some of the increased participation that appears to obtain following elite events may in fact reflect the increase in frequency of participation of individuals who are already active. (later discussions in section 3.2.1.4 strongly reinforce this view).

Specific populations and activities

As noted in section 3.1.3 in relation to the use of facilities, there is some evidence that targeted specific programmes for schools, or

young people more generally, can have an impact. Reports in Canada, Manchester and Sydney have found this and all note the possibility that this reflects provision of targeted events rather than spontaneous involvement (as summarised by EdComs, 2007).

The Canada-based report specifically noted that in relation to children, schools and youth groups, meeting athletes and visiting facilities was beneficial (VANOC, 2007). Of course, as noted in other sources, the impact may be indirect and attributable to other related activities aimed at young people and schools but it does seem to show that the appropriate programmes can have an impact. There is further support for the notion that meeting athletes can inspire participation in Hindson et al (1994), where it is noted that in cases where clubs have participating athletes as members, there may be more tangible effects of an elite event on the clubs.

The Melbourne experience found that people from a wide age range from across the community participated in 'Warming up for the games', which was a broad based community event held across the state of Victoria, which shows the potential effectiveness of such programmes when managed and promoted in the right way (Sport and Recreation Victoria, 2006).

The overall conclusion seems to be that merely hosting the Games is not enough to develop a sustained legacy, and that what is needed is an integrated legacy strategy to leverage participation that includes community and educational programmes, opportunities for coaching, and well-planned, accessible facilities which serve an existing need. 'Warming up for Games', held around the Melbourne Commonwealth Games, is a good example of such an initiative.

3.1.5) The Role of Local Elite Success in Boosting Participation

There is much debate in the included sources about the impact of local success in the Olympics or other elite sporting events on local participation in physical activity or sport. (London East Research Institute, 2007; EdComs, 2007; VANOC, 2007; Hindson et al, 1994).

EdComs (2007), found some indicators of this trend but found it difficult to separate from other influences on development of activity – including watching the activity on TV, the influence of friends, wider initiatives to encourage participation, desire to take more exercise and others. As noted in section 3.1.4, there are complex interactions of factors that influence social behaviour change, and investment may also be a major contributory factor. As section 3.1.4 noted in relation to general participation factors, there is no overall evidence of the impact of elite success on long term behaviour. Furthermore it is noted that those reporting being influenced may already have been involved in other sports. Hindson et al (1994) and VANOC (2007) note some evidence of such a link but methods of data gathering are unclear so it is difficult to demonstrate causality robustly.

Difficulties of linking

There is also debate in the literature about the difficulties of making and sustaining a link between elite sporting success and general population level participation, with London East Research Institute, 2007 reporting no robust evidence. Also, an enduring link is not apparent, as behaviour change may evolve over time under various different influences. It is also hard to measure the impact of 'soft factors' on change, such as social capital derived from experiences such as volunteering and involvement in governance structures, and increased civic confidence in general (London East Research Institute, 2007).

The point is variously made that it can be difficult to assess the link between elite events and grassroots participation and that elite sport may not be the best way to encourage mass participation. There are a number of suggested elements to this argument. Specific elite sports are not necessarily those that active citizens participate in. If there is a link, it is suggested that it is an indirect one (EdComs, 2007) although it is also suggested that elite success may deter others who fear not being good enough. Coalter (2007) reiterates the point that patterns of behaviour change are complex and the relationship of these processes to role models is ill-defined. It may partly depend on a range of

factors including how role models are seen, how accessible or 'normal' their profile is, and also on individual or community self-efficacy.

Hindson et al (1994) recognise potentially dual models of the dynamics at play here. On the one hand, elite sports people can be inspirational as role models, but on the other, they may deter participation because of the perceived competence gap. A further suggested factor is that with elite participants, the role models may be too remote to influence behaviour directly, lending support to the earlier suggestion that it may be that where there is a direct local connection, the influence of elite sportspeople as role models may apply more explicitly. This gap has also been identified in China (Wang and Theodoraki, 2007), providing, according to the report, a spur to bridge it nationally and locally.

There is some evidence that hosting a major sporting event is actually one factor among many that has an impact upon grassroots sports participation rather than being a direct causal motivator in and of itself. An example of this is discussed in the London East Research Institute (2007) report. This report is based on a sample of data taken from an Atlanta household survey and provides equivocal and low quality evidence about the effects of hosting the Olympic Games (see section 3.3.2 for further comments on the use of such general surveys).

Similar to some of the dynamics noted above, EdComs (2007) draws on Foster et al's (2005) notion that a range of factors may influence peoples' level of physical activity, and suggests that more research is needed to understand interactions between these factors. They suggest that single factors are unlikely to effect change in populations as a whole, as responses may be varied and hard to predict. Furthermore, Wang and Theodoraki (2007) highlight the role of cultural factors in mediating the impact on communities of hosting major sporting events.

3.1.6) Advance Planning of Supplemental Activity

In relation to the fact that there is no evidence for an inherent direct link between elite events and increased community participation in physical activity, there is some consensus among the included reports that advance planning and additional activities are required to maximise potential benefits (EdComs, 2007; Coalter, 2007; Hindson *et al*, 1994; Sport and Recreation Victoria, 2006; Wang & Theodoraki, 2007). This is the 'leveraging' approach discussed in the introduction (section 1). Coalter (2007) suggests that striking a balance in participation between that of the sporting elite and that of the general community requires 'planning and hard work with no guarantee of success'. In similar vein, Hindson *et al* (1994) highlight the need for national sporting organisations to actively use the Olympic Games for marketing, to make links with other organisations and gain benefits from the event as a whole, while Sport and Recreation Victoria (2006) demonstrate the broad benefits of the supplemental community-based events around the Commonwealth Games in Melbourne, and highlights the role that the media have to play in achieving a balance in participation between elite sports men and women and the general public. Furthermore, Murphy and Bauman (2007) suggest that coordinated planning between event organisers and other agencies (e.g., public health organisations) is required in order to strike this balance most optimally.

Wang and Theodoraki (2007) describe focused forward planning prior to the Olympic Games in China with municipal government providing funding, facilities and events. The benefits of this forward planning are apparent in the findings, but the events were both highly organised and well funded, and also should be seen in context of a highly state-controlled environment, which may engender higher levels of community compliance in government led initiatives than elsewhere (see, also, the note to this effect in section 1). There has been major investment in facilities for mass participation in communally convenient locations; however there also seems to be a big gap between urban and rural communities, due to a differential investment. In addition, in the city, there are some issues about the population being able to afford the cost of use of certain facilities, as

some decisions were made at government level without local consultation.

Other reports have found that some initiatives were not well taken up (Newby, 2003; Healthier Communities, 2003). In fact Healthier Communities (2003) found no evidence of needs assessment in the report prior to roll out of the initiative which may have had the effect that the initiatives set up did not meet local expressed need.

At a slightly different level of health impact, Villalbi *et al* (1994) report a campaign to reduce smoking around the Barcelona Olympics which adopted varied strategies. Despite the report of little visible smoking or use of ashtrays at Olympic sites, low readings of carbon monoxide, and the authors' feeling that the project strengthened links between non-smoking and sports, the conclusions are unclear and no direct link is established with any clear evidence to support it.

3.1.7) Other Health Related Benefits

Community involvement / community development

Newby (2003) reported a reduction in the local crime rates in East Manchester following the Commonwealth Games, however she also noted that it is possible that this may have been due to more visible policing around the Games rather than to increased community involvement as such.

The report of the Melbourne 'warming up event' (Sport and Recreation Victoria, 2006) noted that 7000 individual volunteers and over 200 clubs were involved in the successful event. Whilst this does not prove a link between broad based community involvement and event success, it does suggest that there may be some association between the two.

Murphy and Bauman (2007) suggests that there are some social capital improvements which can be gained from community involvement in elite sporting events (e.g. from volunteerism), although many

voluntary organisations and volunteer individuals may already be active prior to these index events. In a similar vein, the London East Research Institute (2007) outlines a possible framework for considering how volunteering impacts in varying domains of life: political, economic, cultural, and athletic, but presents no evidence to support the model. Newby (2003) suggests that community experience of major events taking place locally increases pride and optimism in the community as a whole. She claims that communities can become empowered through participation in planning and consultation exercises. It is, of course, possible that the potential self-efficacy derived from such processes might over time contribute to the development of changed behaviour.

Improvements in general health indices

Newby's (2003) report found small improvements in general health indices in Manchester following the Commonwealth Games, although she notes that these take time to demonstrate. EdComs (2007) note from their review of the literature, that health benefits are usually the main reasons for physical activity, alongside others such as fun (for example in the case of team sports). This analysis drew heavily on the work of Foster et al (2005).

In China, a physical fitness follow up to the roll out of the local Olympics related initiative showed health improvements and possible links to extended life expectancy using data gained from a 'national physique examination'. Again, as mentioned above, the possible role of state control in encouraging participation may not be generalisable to other environments (Wang and Theodoraki, 2007).

3.2) Question iia) and iib) – Processes

As the two parts of question ii both sought to examine processes, the inductive thematic analysis extracted themes across all 35 sources returned for this question and, following the initial emergence of 18 themes across the two questions, the four consolidated higher order themes used to structure the analysis for iia and iib were:

- Engagement and Perceptions
- Festival and Community
- Previous Experience
- Processes and Stages

However, in order to maintain clarity about whether the results are derived from the physical activity, sport or health sector or from other sectors, the results to questions iia) and iib) are described separately.

3.2.1) Question iia) – Processes in relation to physical activity, sport and health

- *By what processes have physical activity and sport participation and health-related behaviours been leveraged from the Olympic Games, sports events or sports franchises*

This section considers only Engagement and Perceptions, Previous Experience, and Processes and Stages, as there were no insights relating to Festival and Community for question iia. Firstly however, the text of section 3.2.1.1 describes the quality appraisal of the sources returned.

3.2.1.1) Quality Appraisal

Table 3.2.1 summarises the quality appraisal of the sources included for question iia. Of the ten sources returned in relation to this question, only half are clearly reporting the results of a structured enquiry. However, Brown and Massey's (2001) review of related research prior to the 2002 Commonwealth Games in Manchester

appears to be relatively extensive and comprehensive, but there is no discussion of their methods or search strategy.

Of the remaining four sources, Levett (2004) and Utah Department of Health (undated) provide descriptions of initiatives during the Athens 2004 Olympics and during and after the 2002 Salt Lake City Winter Olympics respectively. These sources have some value in describing what was done, but can offer nothing in terms of evaluation. Schmid (1996) presents some anecdotal descriptive evidence of the impact of the Atlanta 1996 Olympics on sports facilities and provision, but no clear evaluation of the impact of this on participation. Finally, Hamlyn and Hudson's (2005) article is a discussion of the potential of the 2012 Games to impact upon physical activity, sport and public health, which contains some interesting references to further sources, but is essentially an opinion piece.

Table 3.2.1: Summary of Quality Appraisal of the Sources Included for Question iia

Study no.	UK Based?	Field relevant to OHL?	Field	Aims relevant to OHL?	Findings relevant to OHL?	Structured enquiry?	Transparent and replicable?	Design appropriate to question	If not structured then what?	Informed consent obtained?	Representatives of population involved in design and steering	Ethical problems?
Lynch & Dunn (2003)	No, Australia	Yes	Sport Events	Yes	Yes	Yes	Yes	Yes		Yes	No	No
Hamlyn & Hudson (2005)	Yes	Yes	Olympics	Yes	N/a	No	N/a	N/a	Discussion / opinion piece	N/a	N/a	N/a
Cragg Ross Dawson (2007)	Yes	Yes	Olympics	Yes	Yes	Yes	Yes	Yes		Unclear	No	No
Utah Dept. Health (undated)	No, USA	Yes	Winter Olympics	Yes	N/a	No	N/a	N/a	Web Resources / Programme	N/a	N/a	N/a
Brown & Massey (2001)	Yes	Yes	Commonwealth Games	Yes	Yes	Unclear	No	Yes	Non-Systematic Secondary review/analysis	N/a	N/a	N/a
Funk <i>et al</i> (2007)	No, Australia	Yes	Sport Event	Yes	Yes	Yes	Yes	Yes		Unclear	No	No
Lankford <i>et al</i> (2000)	No, Canada	Yes	Sport - Arctic Winter Games	Yes	Yes	Yes	Yes	Yes		Unclear	No	No
Levett (2004)	No, Greece	Yes	Olympics	Yes	N/a	No	N/a	N/a	Programme / Initiative description	N/a	N/a	N/a
Schmid (1996)	No, USA	Yes	Olympics	Yes	Yes	No	N/a	N/a	Discussion / opinion piece	N/a	N/a	N/a
Hogan & Norton (2000)	No, Australia	Yes	Olympics	Yes	Yes	Yes	Yes	Yes		N/a - secondary analysis	N/a	N/a

While several of the structured enquiries are unclear about some ethical aspects (such as obtaining informed consent), their quality is largely good. However, there are some issues relating to their relevance to the review question. While table 3.2.1 shows that they are relevant to the review, in some cases this relevance is tangential or in part (Funk et al, 2007; Lankford et al, 2000). This leads to the same conclusion as that drawn in section 3.1.1 in relation to question i: that the topic is under-researched and more, and more robust, research is required that directly examines the processes that might develop a legacy of physical activity, sport and positive health behaviours from Olympic Games, sport events and sport franchises.

However, overall, the quality of the sources returned is reasonable. The descriptive sources represent themselves as such, whilst the structured enquiries are of good quality in fulfilling their own aims. The only real issue is that few studies directly answer the review question, although they are relevant to it. In the analysis that follows, where evidence is anecdotal or isolated, this is noted in the narrative.

3.2.1.2) Engagement and Perceptions

The central message in relation to this theme is that if the population holds negative perceptions of, or attitudes towards, a major sport event, the potential to use such an event for the development of physical activity or sport, or the promotion of health (or indeed for any other purpose) is likely to be considerably reduced, if not negated. This is a view that is re-inforced by a much wider range of evidence from other sectors (see section 3.2.2.2), and for which the more limited evidence relating to physical activity, sport and health is described here.

Brown and Massey (2001) reviewed previous social impact studies prior to the Manchester 2002 Commonwealth Games and, in drawing together lessons for the Manchester 2002 Research Programme, concluded that:

...the perception of the local population and local communities are important in how people respond to a major event – if their experience and perception is a negative one, they are less likely to be enthusiastic about taking up the sports involved. As such, understanding how the Manchester Games are perceived and why, and understanding the reactions of the Manchester public (in particular near the main Games site) are vital elements of understanding its social and sporting impact” (p. 18)

Similarly, a discursive review of the Arctic Winter Games (Lankford et al, 2000), following a field questionnaire of participants’ attitudes, claimed (although not deriving from the empirical work) that the building of healthy lifestyles was enabled through the *“spirit of play, competition, inclusion, development and understanding”* (p.52) that the Games engendered.

Against this background, the Cragg Ross Dawson report of empirical qualitative research into public attitudes about the 2012 Games (CRD, 2007) suggests that a lack of awareness of legacy goals or plans leads to cynicism about the likely legacy:

“... many wondered why they should believe that the aims and targets will be met. This scepticism was partly due to an underlying cynicism borne of experience or perceptions of government or public projects and promises and, to a lesser extent, recent media coverage of the budget and knowledge of shortcomings in previous Games legacies....But it was also a result of an almost complete lack of awareness on the part of many of any concrete plans or initiatives currently in place which might give confidence in aims and targets for the future.” (pp.17–18)... *“[This] led to a range of initial ‘positions’ regarding the Games legacy from ‘wait and see’ to outright cynicism”* (pp.5–6)

However, this cynicism was tempered by the fact that many respondents wanted to believe that the Games would bring positive benefits:

“There was a widespread desire to believe in the Games and their legacy, but most were ‘held back’ in their views by questions which remained unanswered; few could be more positive than the initial ‘wait and see’ position” (p.6)

The initial views of respondents in this research, expressed before legacy details were explained in more detail, after which responses were much more positive, were derived from a range of public sources, beliefs and memories:

“Prior expectations of what legacy would include seemed to have been influenced by what respondents had heard in the media or on the grapevine, their beliefs about what it should include, and (for some) their knowledge of legacies of previous Games”(p.16)

As such, it would appear that strategies towards developing a physical activity, sport and health legacy need to be linked to wider strategies of public engagement and the development of positive attitudes towards the wider impacts of the Games. This was the summary recommendation of the Brown and Massey (2001: p. 18) review prior to Manchester 2002:

“...a broad notion of participation is needed...[A]ssessing the benefit gained from a major sporting event in terms of sports participation can only be fully accounted for and fully explained if a broader understanding of the social impacts of the Games are understood.”

3.2.1.3) Previous Experience

Unsurprisingly, the headline finding under this theme is that prior participation in, or experience of, physical activity and sport predicts current and future participation. This is something that has long been reported in the wider exercise and sport psychology literature, in which a meta-analytical review of evidence from 72 previous studies (Hagger et al 2002) shows that the effect of past behaviour on behaviour is twice that of any other variable studied. However, there is also some limited evidence here that past behaviour predicts

engagement in or with sport or health behaviours in a sport event context (see also the discussions about the increased frequency effect in sections 3.1.4 and 3.2.1.4). Furthermore, section 3.2.2.4 describes a wider range of evidence in relation to other sectors (e.g. sport volunteering and tourism).

Funk et al (2007) investigated active participation in an international sport event, the 2005 Gold Coast Marathon in Australia. Among international entrants, prior sport involvement was identified as a key motivation for participation across all participants, regardless of gender or cultural group. While this may not seem a surprising conclusion, it does provide (albeit isolated in the context of this review) empirical evidence for a process of engagement with major events that is predicted by previous sporting experience and participation. This is reinforced by evidence from other sectors presented in section 3.2.2.4

There is further evidence, although again isolated, relating to health behaviours, for which event-related research is particularly sparse. Levett (2004) discussed the potential public health issues in relation to the Athens 2004 Olympics, but did not discuss outcomes or processes. Other research has discussed issues associated with venue advertising. In particular, Lynch and Dunn (2003) studied spectator recall of health messages relating to the use of sunscreen included in ground advertising at cricket matches at the Brisbane Cricket Ground during the 1999/2000 season. However, while:

"[t]he primary objective of this study was to investigate the efficacy of scoreboard advertising as a medium to promote SunSmart behaviour...the sun-protective behaviour of spectators who did and did not recall the advertising was [also] quantified" (p. 490)

This resulted in the additional finding that spectators who recalled the advertising were already engaged in significantly higher levels of sun protective behaviour than those who did not recall the advertising. Thus, positive sun-protection behaviour was a clear predictor of engagement with sun-protection messages in a sport event context.

3.2.1.4) Processes and Stages

Three areas of significance emerge under this theme. The first is that the assumption that the process by which major games engage non-participants in physical activity and sport is a ‘demonstration’ or ‘trickle-down’ effect is likely to be flawed, and that this flawed assumption has had adversely affected the evidence base. However, a demonstration effect may have the potential to raise participation frequency among those already engaged with sport. Secondly, there is isolated anecdotal evidence that the presence in a forthcoming major event of new or unusual sports or activities can lead to a widening of the range of sports played, particularly among young people in schools. Thirdly, that the debates around the first two areas suggest a staged engagement with physical activity and/or sport through major events.

Political and policy-making thinking in relation to the potential physical activity and sport benefits of major events is similar to thinking about the often quoted “Wimbledon-effect” though which, in July each year in the two to three weeks during and after Wimbledon, there is claimed to be an increase in the use of tennis courts around the country. Illustrative of the view of many of those in leadership positions in both sport and in politics is the comment of former Minister for Sport and current Chairman of the British Olympic Association, Colin Moynihan, that “London 2012 will motivate a whole generation of young people as they seek to emulate their Team GB heroes both on and off the sporting field”⁴.

A ‘demonstration’ or ‘trickle-down’ effect, whereby the achievements of top athletes inspires non-participants to get involved in sport, has underpinned sport development (and sport funding) policy in a number of countries for decades. In the run up to the Sydney 2000 Olympics, Hogan and Norton (2000) examined the evidence for this

⁴ LOCOG Press Release (2007) *Five Years to go to the start of the London 2012 Games*. <http://www.london2012.com/news/media-releases/2007/2007-07/five-years-to-go-to-the-start-of-the-london-2012-games.php> (accessed 1/8/08)

effect in Australia in the 20 years between 1976 and 1996. In doing so, they cited the direction of central government funding strategies and the belief in the effect of successive Australian Sports Ministers, the Confederation of Australian Sport and the co-ordinator of sport science at the Australian Institute of Sport, as evidence that the dominant view in Australian sport was that:

“These champions and potential champions provide an important inspiration for others to ‘have a go’. As well, greater participation will lead to a healthier Australian Community” (Australian Senator and Minister for Sport, Graham Richardson, cited in McKay, 1991; p.81)

Furthermore, Hogan and Norton (2000) note that this political belief in a demonstration effect is not limited to Australia, citing the Chief Executive of the Hillary Commission for Sport as claiming that the performance of New Zealand’s athletes have *“clear flow through to national esteem and increased sports participation”* (cited in Hindson et al, 1994; p.17). The report of the Surgeon General in the USA is also cited which, making specific reference to the Olympic Games, states:

“Although participants in the modern Olympic Games no longer compete with the Gods, today’s athletes inspire others to be physically active and to realise their potential – an inspiration as important for modern peoples as it was for the ancient Greeks” (US Surgeon General, 1996; p.12)

The Hogan and Norton (2000) study is particularly significant because it compares investment in elite sport in Australia, which has targeted investment towards elite sport over a more sustained period of time than any other social democracy in the world, with elite performance at the Olympic Games and the level of the Australian sedentary population. Over a 20 year period expenditure on elite sport rose from virtually zero in 1976 to AUS\$150million in 1995. This was matched by a steady increase in Australia’s position in the Olympic medal table from 32nd in 1976 to 7th in 1996 (5th if population size is accounted for). However, over a similar time-period, the amount of

Australians reporting they were completely sedentary rose from an average of 29.1% of the population in 1984, to 40.6% in 1999. Hogan and Norton (2000; p.216) conclude that this data suggests that:

“The expectation that successful sporting heroes as role models inspire others to participate in sport and physical activity may have run its race. Perhaps it was never a legitimate starter....Directing approximately one billion dollars to the elite apex of the sports pyramid in expectation that mass participation will result is irresponsible...we should not accept as a matter of fact that our elite sports success translates into motivation to become active among the rest of the population”

Hamlyn and Hudson (2005: p.882) similarly suggest that the most effective processes are unlikely to be those that are linked to a demonstration effect: *“To maximise health gain, an event should be portrayed in a way that stimulates therapeutic exercise”*. However, they also cite market research commissioned by Sport England, carried out one month after the end of the Athens 2004 Olympic Games, that suggests that: *“More than a quarter of the population in England (26%) have been inspired by British medal-winning performances at the Olympic games in Athens”*⁵. While this appears to suggest a demonstration effect in inspiring take up of sport and physical activity, the figure of 26% refers to those *“who are now involved in more sport”* (11%) and those *“interested in doing more sport”* (15%)⁶, *“as a result of Team GB’s success”*. This would appear to indicate an increase in frequency of those already active, rather than an increase in participants (an effect also suggested in section 3.1.4), a common misrepresentation in evaluations of this kind (see section 3.3). A survey of 11 sport governing bodies conducted for Sport England at the same time reported that *“every sport contacted...expect to enjoy a higher profile than before the Games”* and that during the Athens 2004 Games *“they had dealt with more enquiries from both the public and*

⁵ Sport England Press Release (2004) *Athens success inspires one in four to take up sport*. www.sportengland.org/news/press_releases/athens_success_inspires.htm (accessed: 3/8/08)

⁶ Sport England, Ibid.

*the media than ever before*⁷. In respect of the first finding, this is a report of an expectation of increased interest not of increased participation, whilst the latter finding does not detail the nature of the enquiries. Given that media and public enquiries are reported together, there can be no assumption that these are enquiries that might relate to new participation.

Both Hamlyn and Hudson (2005) and the research prepared to underpin the 2012 Legacy Action Plan (EdComs, 2007) cite Olympic success in curling as leading, in Scotland, to *“the sales of related equipment escalat[ing] substantially”* (Hamlyn and Hudson, 2005; p.882) and in *“ice rink managers report[ing] increases of 6% in visitors for curling and club membership nationally rose by 3%”* (MORI, 2004, cited in EdComs, 2007; p.43). However, only 4% of the new curlers cited GB team success as the main reason for their participation (EdComs, 2007; p.43). EdComs (2007) also examine the demonstration effect in cricket, whilst Brown and Massey (2001) comment on Rugby. In each case there is the suggestion (by the sports’ governing bodies) that club membership has risen, but there is no way of attributing this to a demonstration effect. Furthermore, EdComs (2007; p.43) suggest a ‘switching’ effect:

“...those who say they have been influenced by success may have been physically active in other sports. This does seem to have been the case in the curling example and, if true on a wider scale, means that success simply encourages interchange between sports rather than increased participation in sport overall.”

Therefore, in addition to the misreporting of increased frequency as increased numbers of participants, activity switching (which was also noted in section 3.1.5) can also contribute to a misguided appearance of a demonstration effect (these are both examined in more detail in section 3.3). Brown and Massey (2001) also cite wider evidence that those who gain most from new facility provision (such as that left as a legacy from major sport events, as described by, *inter alia*: Schmid, 1996; EdComs, 2007; Utah Department of Health, undated; Brown and

⁷ Sport England, Ibid

Massey, 2001; and also noted in section 3.1.3), are the groups identified by Ravenscroft (1993) as “leisure gainers” (predominantly professional white middle class males) who are already engaged with recreation (Collins et al, 1999; Coalter, 1993). This would seem to reinforce the likelihood of a switching or increased frequency effect. In summary, therefore, EdComs (2007; p.9) conclude:

“There is some evidence to show that the success of a national team or athletes can have an impact, however, this may only be small and short-term.”

If this is true, and any demonstration effect is both minimal and short-term, it is entirely consistent with the statistics reported by Hogan and Norton (2000) in Australia, which provide evidence that there is not a demonstration effect in sustained trends over a 20 year period. Hogan and Norton (2000) also reported a widespread belief in a demonstration effect, a belief to which the common misreading of much of the above evidence also contributes. The experience of conducting this review suggests that this has adversely affected the evidence base, as the belief in a demonstration effect has resulted in this effect being the focus of the majority of research, thus narrowing the scope of the already limited evidence.

It is worth noting explicitly, however, that the above discussions (and those in section 3.1.4) do provide evidence for a demonstration effect in increasing participation frequency – that is, encouraging those already participating in sport to participate more. As such, if raising frequency of participation in sport is an important policy goal, then the demonstration effect has clear potential in this area if properly leveraged.

Of course, if participation frequency in sport can be raised via the Olympic Games through a demonstration effect, it would seem to suggest that the effect would take place post-Games. However, as Hamlyn and Hudson (2005) suggest, the issue is the way in which the Games are “portrayed”, and such a portrayal can take place in the years before, as well as during, the Games. As such, a demonstration effect

could be encouraged by programmes that link the successes of past-athletes and potential future Olympians with the forthcoming Games. However, it is important to be clear, once again, that the evidence suggests that the potential for a demonstration effect is only in relation to participation frequency. As such, any programmes directed at encouraging new participants should be underpinned by other processes.

One such other process is that the presence of new or unusual sports in a forthcoming event programme can lead to the sport being more widely available to be played. Schmid (1996; p.22) comments on this effect in relation to the Atlanta 1996 Olympics, citing the Assistant Director of the Columbus Parks and Recreation Department as stating:

“Because women’s fast-pitch [softball] is part of the Olympics for the first time, our schools have started playing fast-pitch in Georgia, which they didn’t do until last year....With high schools playing, now you have a feeder system. I think one of the biggest accomplishments is that it’s going to develop the sport to a new level.”

Similarly, Brown and Massey (2001: p.11) note that a similar process may take place with the Commonwealth Games, which may provide some sports with *“a unique opportunity to gain an audience for their sport, which may otherwise receive little exposure”*. This is different to a demonstration effect, because the focus is not on success, nor is it on individuals or teams, it is on the sport and its legitimacy as evidenced by its place on the Olympic programme. Such an effect is unlikely in relation to more established sports or activities. Furthermore, the evidence for this effect is largely anecdotal and is perhaps more likely to lead to activity switching than to the stimulation of newly active participants. It is also related to institutional decisions about which sports to provide or prioritise in particular contexts, such as schools.

This leads to a comment on the nature of any ‘Olympic-effect’. Such an effect may be a direct one on the motivations and behaviours of individuals, or it may be an indirect effect. The indirect effect is briefly

touched upon by the 2012 Legacy Research (EdComs, 2007; p.45), which notes an increase in participation levels (i.e. *“play more sport”*) in schoolchildren and young people in Manchester following the 2002 Commonwealth Games. However, EdComs (2007; p.46) note that *“this may be an indirect impact, in that the Games stimulated a great deal of activity targeted at young people and schools”*. The implication here is that it is the level of developmental activity, rather than the presence of the Games, that led to increases in participation levels. The question, therefore, is whether the same level of investment and activity as that stimulated by an Olympic Games in physical activity and sport development and in health promotion would have the same effect regardless of the occurrence of a Games? This is addressed again in section 3.3.

A final conclusion that can be drawn from this section is that evidence does seem to indicate the existence of a staged engagement with physical activity and sport in relation to major events. Much of the debate above has focussed on whether any effect that has been suggested is one of stimulating interest, of stimulating new participation, of increasing frequency of participation, or of activity switching. This suggests different stages of involvement for which a number of models have been suggested in the previous literature. Three such models referred to in the sources included in this review are discussed in detail in section 3.2.2.5; however, one of the three has appeared in Funk et al's (2007) examination of international participation in the Gold Coast Marathon in Australia. The Psychological Continuum Model (Funk and James, 2001) suggests *“that recreation participation (both active and passive forms) occurs within four general hierarchical stages”* (Funk et al, 2007; p.228) which actually appear to be processes rather than stages and Funk et al, 2007, refer to them as such throughout their description of the model). The four processes are: awareness, attraction, attachment and allegiance, and these are returned to in section 3.2.2.5 alongside discussions of the Transtheoretical Model (Prochaska et al, 1992) and the Exercise Adoption Model (Brooks et al, 1996). The Psychological Continuum Model has been mentioned here to highlight that a

conceptual model of a staged process of engagement through sport events has been applied to physical activity and sport.

3.2.2) Question iib) – Processes in relation to tourism, volunteering, spectating and consumer behaviour

- *What processes that have been used to leverage, inter alia, volunteering, community engagement and tourism from the Olympic Games, sports events and sports franchises might inform leveraging strategies for physical activity, sport and health?*

As noted at the start of section 3.2, the higher order themes that provide the framework for analysis for this section are: Engagement and Perceptions, Festival and Community, Previous Experience, and Processes and Stages. Firstly, however, the text of section 3.2.2.1 describes the quality appraisal of the sources returned.

3.2.2.1) Quality Appraisal

Table 3.2.2 summarises the quality appraisal of the sources included for question iib. Twenty-four sources were included for this question, more than double that of any other question, although a further two sources (Malfas et al, 2004; Pretty, 2004) were excluded following quality appraisal as they were judged not relevant on the basis of being too general and of not being applicable to Olympic legacies respectively (thus reducing the ‘included’ total from 26 as reported in section 2.2). The inclusion of a greater number of sources is indicative of the broader scope of question iia, the wider range of available evidence, and the generally higher quality of available research.

Of the 22 sources judged relevant, 14 reported on a structured enquiry. Seven of the remaining eight undertook some form of unstructured secondary analysis or review of previous research and, although their approaches are not discussed and are therefore not transparent, their coverage is broad and their discussions are therefore informed by a wide (although not comprehensive) range of previous literature. The one remaining study (Smith and Fox, 2007), whilst listed as a policy briefing, is actually a relatively wide-ranging evaluation of the Manchester 2002 Commonwealth Games legacy programme funded by the Single Regeneration Budget, derived from

previous studies and what appears to be a relatively sporadic series of qualitative interviews. Whilst not transparent or systematic, this study does appear to be relatively thorough.

Many of the studies are listed as 'worldwide' because they draw on secondary material, with the remaining non-UK studies being based in Western liberal democracies such as the USA, Australia and Canada. As with the sources included for section iia, few studies report ethical details such as informed consent, although the only studies in which any further problems with study design or ethics were identified were Chalip et al (2003) and Kinney and McDaniel (1996), each of which used students at the researchers' universities as participants.

Table 3.2.2: Summary of Quality Appraisal of the Sources Included for Question iib

Study	UK Based?	Field relevant to OHL?	Field	Aims relevant to OHL?	Findings relevant to OHL?	Structured enquiry?	Transparent and replicable?	Design appropriate to question	If not structured then what?	Informed consent obtained?	Representatives of population involved in design and steering	Ethical problems?
Deccio & Baloglu (2002)	No, USA	Yes	Winter Olympics	Yes	Yes	Yes	Yes	Yes		Unclear	No	No
Kim & Chalip (2004)	No, USA	Yes	Football World Cup	Yes	Yes	Yes	Yes	Yes		No	No	No
Malfas <i>et al</i> (2004)	No, Worldwide	Yes	Olympics	Yes	No	No			Discussion / opinion piece	N/a	N/a	N/a
Pretty (2004)	No, Worldwide	Yes	Green Exercise	No	No	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Smith & Fox (2007)	Yes	Yes	Commonwealth Games	Yes	Yes	No			Policy briefing / Debate	N/a	N/a	N/a
Waitt (2003)	No, Australia	Yes	Olympics	Yes	Yes	Yes	Yes	Yes		No	No	N/a
Burgham & Downward (2005)	Yes	Yes	Swimming Volunteering	Yes	Yes	Yes	Yes	Yes		No	No	No
Downward & Ralston (2006)	Yes	Yes	Commonwealth Games	Yes	Yes	Yes	Yes	Yes		No	No	No
UK Sport / ICRC (MMU) (2003)	Yes	Yes	Commonwealth Games	Yes	Yes	Yes	Yes	Yes		No	No	N/a

Ritchie (2000)	No, Canada	Yes	Winter Olympics	Yes	Yes	Yes	Yes	Yes		No	No	No
Fredline (2005)	No, Worldwide	Yes	Sport Events	Yes	Yes	No			Non-systematic secondary review/analysis	N/a	N/a	N/a
Whitson & Macintosh (1996)	No, Worldwide	Yes	Sports Events	Yes	Yes	No			Non-systematic secondary review/analysis	N/a	N/a	N/a
Ralston <i>et al</i> (2004)	Yes	Yes	Commonwealth Games	Yes	Yes	Yes	Yes	Yes		Unclear	No	No
Heere & James (2007)	No, Worldwide	Yes	Sports Teams	Yes	Yes	No			Non-systematic secondary review/analysis	N/a	N/a	N/a
Ohmann <i>et al</i> (2006)	No, Germany	Yes	Football World Cup	Yes	Yes	Yes	Yes	Yes		Unclear	No	No

Study no.	UK Based?	Field relevant to OHL?	Field	Aims relevant to OHL?	Finding s relevant to OHL?	Structure d enquiry?	Transpare nt and replicable?	Design appropriat e to question	If not structured then what?	Informe d consent obtained ?	Representatives of population involved in design and steering	Ethical problems?
Chalip (2006)	No, Worldwide	Yes	Sport Events	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Crompton (2004)	No, USA	Yes	Sport Franchises	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Chalip <i>et al</i> (2003)	No, USA & New Zealand	Yes	Sport Events	Yes	Yes	Yes	Yes	Yes		Unclear	No	Uses student participants who gained course credits for taking part
Kinney & McDaniel (1996)	No, USA & Norway	Yes	Winter Olympics/ Event Sponsorship	Yes	Yes	Yes	Yes	Yes		Unclear	No	Uses student participants at the researchers' university
Symons (2002)	No, Worldwide	Yes	Gay Games	Yes	Yes	Yes	No	Yes		No	No	No
Green & Chalip (1998)	No, Worldwide	Yes	Sport Volunteers	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Sparvero & Chalip (2007)	No, North America & Worldwide	Yes	Sport Franchises	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Zhang <i>et al</i> (1997)	No, USA	Yes	Sport Franchises	Yes	Yes	Yes	Yes	Yes		No	No	No
Kennedy <i>et al</i> (2006)	Yes	Yes	London Olympics	Yes	Yes	Yes	Yes	Yes		N/a – Discourse analysis / auto-ethnography	N/a – Discourse analysis / auto-ethnography	N/a – Discourse analysis / auto-ethnography
Green <i>et al</i>	No, USA.	Yes	Sport Events	Yes	Yes	Yes	Yes	Yes		Unclear	No	No

Table 3.2.2: Summary of Quality Appraisal of the Sources Included for Question iib (cont.)

As the purpose of question iib is to identify processes from other sectors that might provide lessons for developing a physical activity, sport and health legacy, few of the studies are directly relevant to physical activity, sport and/or health, although they are all relevant to question iib. As such, given the broader scope of the question, the sources included are all directly relevant.

Overall, the quality of the studies is good, with even those studies that do not report on a structured or systematic enquiry covering a wide range of material in a secondary review or analysis. However, in the analysis that follows, where evidence is anecdotal or isolated, this is noted in the narrative.

3.2.2.2) Engagement and Perceptions

Section 3.2.1.2 suggested that positive perceptions of, or attitudes towards, major events are an important foundation for using such events to develop physical activity, sport or health. This section provides evidence from research on the social and the economic impacts of sports events and franchises, on event tourism and on community reactions to events to reinforce this important point.

Crompton (2004), in relation to US Major League sports teams, and Ohmann, Jones and Wilkes (2006), in relation to the 2006 Football World Cup in Germany, each note that a local community's positive perceptions of the impact of a sports team or event on that community is an important factor in generating engagement with the team or event. Three further studies (Deccio and Baloglu, 2002, on impacts of the Salt Lake City 2000 Winter Olympics outside the host region; Fredline, 2005, on host-guest relations in sport event tourism; Waitt, 2003, on the social impacts of the Sydney 2000 Olympics) have conceptualised this process using Social Exchange Theory (Ap, 1992; Emerson, 1972). Waitt (2003; pp. 195–196) explains social exchange theory in relation to his work on the Sydney 2000 Olympics:

“This theory suggests that residents evaluate tourism/events as either positive or negative in terms of the expected benefits or costs deriving

from the services they supply....In the context of hallmark events, the perceived rewards should equal residents willingness to carry the infrastructure costs, extending friendliness, courtesy and hospitality to tourists, and tolerating inconveniences....Residents are more likely to have positive perceptions if they have a sense of participation in planning policies and trust in the event organisers....Critically, exchange relations are not temporally static. Residents constantly re-evaluate the perceived consequences of the exchange transaction within a dynamic social setting.”

Waitt (2003) also describes ‘altruistic surplus’, whereby the perceived benefits of a social exchange may not be direct to the individual, but to other groups that the individual would like to see receive such benefits. This resonates with the Cragg Ross Dawson (CRD, 2007) research on public perceptions of the 2012 Games, in which many respondents wished to see the impacts of the Games directed at young people.

Deccio and Baloglu (2002) focussed on the spillover effects of the 2002 Salt Lake City Winter Olympics to a community 250 miles away from the Games sites. They found that the community in general did not perceive the spillover effects as much affecting their area. However, *“those residents who perceive that spillover or indirect benefits will flow from the Olympics tend to support it”* (p. 53). Consequently, Deccio and Baloglu (2002; p. 53) suggest that local tourism bodies: *“need to prepare residents for the Olympic period... [and] communicate the expected benefits and costs from the 2002 Olympics”*. Furthermore, reinforcing the effect of ‘altruistic surplus’ and the resulting desire for local community benefits, Deccio and Baloglu (2002; p. 54) conclude:

“...residents will not be supportive and responsive if they do not perceive that they will receive some sort of social, economic or other kind of benefit from the tourism exchange generated from the Olympics. When faced with activities that would benefit the community (community activities and county promotion), respondents were very receptive.”

The message, therefore, is that communities need to be convinced that there is some benefit in their social and psychological relationship with an event. The benefit need not be direct for each individual, but can be for the wider community, or for other groups that individuals or communities believe are deserving of such benefits. Importantly, the local relevance of benefits appears to be significant. As this relationship is dynamic, positive perceptions of benefits need to be maintained over time, otherwise if communities *“perceive the costs to outweigh the benefits, they will hold negative attitudes...and may attempt to withdraw from the relationship”* (Fredline, 2005; p.271).

In addition to social exchange theory, Fredline (2005) also draws on Social Representation Theory (Moscovici, 1981). She explains (p. 271):

“Social representations are ‘systems of preconceptions, images and values’ about a phenomenon. Representations are the mechanisms people use to try to understand the world around them. When information on an unfamiliar object or event is encountered, past experience and prior knowledge of something that is seen as similar is used as a reference point. It is argued that representations are resistant to change because they form a frame of reference through which new information is interpreted.”

This is consistent with the findings of the Cragg Ross Dawson research, which noted that respondents drew on their knowledge of legacies of previous Games to inform their perceptions of the likely legacies of the 2012 Games (CRD, 2007), particularly as they knew little about the 2012 legacy plans. Social representation theory would appear to suggest that, if such knowledge of previous legacies results in a negative perception of the potential legacy of 2012, then these preconceptions may be hard to change. Conversely, if such preconceptions lead to positive perceptions, then these may be similarly resistant to change, notwithstanding the assumptions of social exchange theory that exchange relations are not static over time (Waitt, 2003).

Cragg Ross Dawson noted that respondents wanted to believe in the benefits of the 2012 Games, but were cynical because of previous experience of other events or projects, or because of information in the media (CRD, 2007). They also reported that when the legacy plans for the 2012 Games were explained to respondents, they became much more positive about the potential legacy. This seems to reinforce Deccio and Baluglu's (2002), conclusion that there is a need to direct attention and effort towards the communication of benefits, particularly those that local communities will feel are relevant to them. Otherwise, communities will withdraw from the exchange relationship (Fredline, 2005) and will therefore be beyond the reach of any programmes that attempt to use the Games to motivate behaviour change.

3.2.2.3) Festival and Community

The importance of festival in creating the perception that a significant event is taking place is contained to some extent in 12 of the 24 sources included for question iib. It is drawn from all sectors, including volunteering (ICRC, 2003), tourism (Kim and Chalip, 2003), spectatorship (Heere and James, 2007) and economic (Crompton, 2004) and social (Waitt, 2003) impacts. The central message is that festival, and the communality or 'communitas' (Chalip, 2006) that it engenders, creates in people a desire to be part of something that is significant on a large scale. The significance of what might be termed a 'festival effect' for this review is that the desire to participate might be satisfied by related initiatives involving physical activity, particularly in the community.

Somewhat conversely, however, the sport aspect of the event becomes less important in engendering a festival effect. Chalip (2006; p.110-111) explains:

"The sporting outcomes may matter to some, but there is a sense that something more important – something that transcends the sport – is going on....There is a heightened sense of community among those who are present. This alteration of communal affect has been much

studied and documented by anthropologists who study public performances, including sport events. If there is an overtly sacred aspect to what is going on, they call it 'liminal'; if the feeling occurs in a secular context, they call it 'liminoid'. They call the sense of community that is engendered 'communitas'."

The generation of *communitas*, therefore, appears to be facilitated by a feeling that the event "transcends sport". This is reinforced by research into volunteers at the Manchester 2002 Commonwealth Games. Ralston et al (2004) found that two of the three factors that motivated the volunteers in their focus groups were: 'involvement' and wanting to be part of a team, and the "*uniqueness of the Games and being part of this rather special event*" (p.23). However, they also found that:

"Most people perceived the Games from an event perspective rather than a sport perspective. Two factors were important: the uniqueness of the event and the international nature of the Games." (p.20)

Similarly, the International Centre for Research and Consultancy for the Tourism and Hospitality Industries (ICRC) pre-Games study of volunteers found that 24 % of volunteers had not volunteered before, and that the primary motivation for volunteering lay in being part of a team, taking advantage of a unique opportunity and (cited by 96% of respondents) the idea that being a Games volunteer would be an exciting experience (ICRC, 2003). Similar motivations can be found in Kim and Chalip's (2003) study of international travellers to the 2002 World Cup in Korea and Japan, for whom interest in the atmosphere and festival surrounding the event was as important as interest in the football matches themselves.

Chalip (2006) notes that celebration and camaraderie are important factors in creating the feeling of an event being bigger than and beyond sport, and this aspect of the festival effect can be fostered by symbolism and iconography. This would seem to resonate with Kennedy et al's (2006) study of the London 2012 bid campaign, in which they analyse the way in which the symbols and icons of London

and Britishness (e.g. the London Eye, Nelson's Column) were combined with athletic acts to create a campaign which was, in and of itself, a spectacle. They suggest that the London 2012 bid campaign acted as an *"affective magnet"*, noting *"affect is about our investment in something, a particular experience or practice"* (p.16). Kennedy et al (2006; p.19) describe how *"[d]esire for 'London 2012' was mapped onto people's existing sites of investment to steer their energy towards the campaign"*. Such sites of investment were monuments, symbols and icons that transcended sport and helped to engender celebration, camaraderie and communitas (Chalip, 2006) in significant proportions of the population.

In his study of the Sydney 2000 Olympics, Waitt (2003; p.212) also describes outcomes and rewards for the local community that were little to do with sport:

"The 'buzz' surrounding the Games was expressed particularly in feelings of patriotism, community spirit, and the desire to participate as a volunteer. Unquestionably, a significant psychological reward for many respondents was that the imagined bond that underpins national identity became a reality over the 16 days"

The importance of this bond or sense of belonging has also been described by Heere and James (2007) in relation to sports spectators, suggesting that many fans who are highly identified with particular sports teams might be more appropriately considered as "organisational members" than supporters. Such fans signify their membership through describing their teams as "we", and expand their membership to external (non-sporting) aspects of their identity such as ethnicity, locality, gender and social-class. A similar extension of identities beyond sport can be found among participants in the Gay Games. Symons (2002) describes the way in which participants perceive 'community' as being cultural or values-based rather than geographically based and, not surprisingly, attach particular importance to the fact that the Gay Games community adheres to values of inclusion, equity and opportunity that transcend sport .

The key aspect of the phenomenon of *communitas* is that the communality and community spirit that it describes creates a desire, if not an urge, to participate in some way, and that this desire is stronger if the event is perceived to be bigger than and beyond sport. This is what might be termed a 'festival effect'. However, as noted in section 3.2.2.2, local (or cultural) relevance remains important. Crompton (2004) and Sparvero and Chalip (2007), in investigating the community impacts of professional sports teams in the USA, each highlight similar phenomena that they describe respectively as "psychic income" and "community self-esteem":

"Psychic income is the emotional and psychological benefit residents perceive they receive, even though they do not attend sport events, and are not involved in organising them" (Crompton, 2004; p.49)

"...community self esteem [has] an external component, through which residents believe that outsiders have a positive view of their community, and an internal component, which refers to the residents' own perception of their community" (Sparvero and Chalip, 2007; p.17)

Both psychic income and community self-esteem are linked to perceptions that the value of the sports teams is not in the sport, *per se*, but in what the teams bring to the community in terms of its own and others views of its self-worth. It locates the importance of the teams within community identity, rather than within sport. This is complemented by advice given by Ritchie (2000), following an extensive and sustained research programme over five years into the legacies of the Calgary 1988 Winter Olympics. Ritchie (2000; p.160) suggests that *"a given host city must actively seek to make a given mega-event as regional as possible, so as to draw in as many supporters and participants as possible"* (for the UK's geographical scale, regional can be taken to mean national). Thus the challenge is to make an event that is officially located in a city feel as though it belongs to the nation, but in such a way that every local (or cultural) community feels it is relevant to them. If this can be achieved, and a strong sense of *communitas* engendered, then a festival effect creating

a desire to find outlets to participate in some way is likely to be the result.

Smith and Fox (2007) suggest that one way in which this can be achieved is to develop a legacy programme that is 'Event Themed' rather than 'Event Led'. They conducted a qualitative evaluation of all aspects of the Legacy Programme of the Manchester 2002 Commonwealth Games funded by the Single Regeneration Budget which included, *inter alia*: the pre-volunteer programme; 'Let's Celebrate!' (a minority ethnic group celebratory arts programme); a Commonwealth Games curriculum pack for schools; Games Xchange (a business promotions programme); and Passport 2K (providing after schools activities in sport and arts for 11–18 year olds). Smith and Fox's (2007; p. 1139) central point is that the Legacy Programme was event-themed rather than specifically and explicitly led by the Games:

"The Commonwealth Games was used as a uniting theme, rather than a speculative stimulus, for regeneration and this encouraged a more considered approach"

This might be compared with the *"speculative stimulus"* of the *"event-led"* 'demonstration' or 'trickle down' effect (critiqued in section 3.2.1.4) that many believe is the key process by which new participation in sport is developed from major events. In fact, Smith and Fox (2007; p.1140) explicitly criticise such an approach in favour of a local focus: *"Using an event to unite a series of neighbourhood-level initiatives helps to avoid an approach reliant on 'trickle-down' effects"*.

Smith and Fox's (2007) work is further evidence for a festival effect engendered by the bigger than and beyond sport theme in the preceding paragraphs, emphasising the focus on a *"popular coalescing theme"* that included *"a mixture of projects linked to the Games, alongside those with more tenuous associations"* (p.1139). Such a mixture is also evident in the Utah Department of Health's (undated) 'A

Healthier You'⁸ legacy programme from the 2002 Salt Lake City Winter Olympic Games, which largely comprises a series of local-level initiatives with only a tenuous link to the 2002 Games:

"Most of us will never be at an Olympian level of health, but we can achieve some sort of optimal health of our own. The Olympic Games have never been used for that before" (Scott Williams, former Utah Department of Health Executive Director)⁹

"...this programme creates an energy and enthusiasm for adults in Utah to be healthy and captures the spirit associated with the Games." (Kim Wirthlin, University of Utah Health Sciences Centre, Assistant Vice President for Legislative and Public Affairs)¹⁰

It is the need to evoke a *"spirit associated with the Games"* to leverage a festival effect that runs through this section, and that such a spirit must transcend sport. Furthermore, Smith and Fox (2007; p.1138) suggest that a programme that adopts this broader event-themed approach is best delivered in the pre-Games period:

"The perception was that much of the delivery was undertaken before the Commonwealth Games, with levels of interest and impact consequently dropping off soon after the Games is finished."

While, for the respondents in the Smith and Fox (2007) study, this was seen as a negativity, it is an important encouragement for the prospects of delivering a physical activity, sport and health legacy programme in the years preceding the 2012 Games (see also section 3.3.4).

3.2.2.4) Previous Experience

⁸ Utah Department of Health (undated) <http://health.utah.gov/ahy/History.htm> (accessed: 25/6/08)

⁹ Utah Department of Health (undated) Ibid.

¹⁰ Utah Department of Health (undated) Ibid.

Section 3.2.1.3 noted the widely evidenced process in the broader literature on physical activity, exercise and sport by which prior participation predicts current and future participation. However, it also described some limited evidence that this may also be true within a sport event context. This section explores further the suggestion that prior experience of sport and/or sport events predicts engagement as a tourist, volunteer or participant.

A range of sources relating to volunteering at sport events in general (Green and Chalip, 1998), at the Manchester 2002 Commonwealth Games (ICRC, 2003; Ralston et al, 2004) and in swimming (Burgham and Downward, 2005) all indicates that previous interest in, experience of, or participation in sport is a general predictor of current and future sport, and more particularly sport event, volunteering. Such previous interest or experience may have been as a participant, as a live spectator, as a mediated spectator (i.e. watching on television), as a previous volunteer, or as a result of the involvement of family or friends. Similarly, Kim and Chalip (2004) found that previous interest in the Football World Cup as an event was the variable with the largest impact on desire to travel to the World Cup in Korea and Japan. This evidence all makes intuitive sense, and supports the wider evidence base related to physical activity, exercise and sport mentioned in the previous paragraph that previous participation makes current or future participation more likely, but also that this process applies in a sport event context.

A further perspective is provided by one particularly interesting paper on the Manchester 2002 Commonwealth Games, which examined the sports development potential of volunteering at that event (Downward and Ralston, 2006). Through factor analysis of questionnaire responses, they sought to establish whether sports volunteering had any impact on sports participation. They found that interest in sport and the likelihood of increased participation is raised among younger volunteers and those feeling personally developed by their volunteering experience. Therefore, among certain groups a sports event volunteering experience may increase the likelihood of sport participation – although whether this is likely to be new participation

rather than activity switching or increased participation frequency (as discussed in sections 3.1.4, 3.1.5, 3.2.1.4 and 3.3.2) is unclear.

More surprisingly, Downward and Ralston (2006) also found that previous live attendance at sport events was an additional factor in raising both interest and participation, but that this did not extend to those who watched sport on TV. This is consistent with Irlinger's (1994) research in France, which established a statistical link between watching sport on television and participating in sport, but found that there was no causal relationship. However, Downward and Ralston's (2006) study, albeit providing only isolated evidence, does suggest that there may be a staged relationship, and that if those watching sport on television progress to watching live sport, this may also be a first step towards active sport participation.

3.2.2.5) Processes and Stages

Previous sections (3.2.1.4 and 3.2.2.4) have indicated that the process of engagement with physical activity, sport and health behaviours through sport events occurs through a number of stages. This section further explores the evidence for this, drawing on research on sport event volunteering, tourism and consumer behaviour, and extending the discussion to examine the broader literature on models of engagement with physical activity, sport and health.

In a review that sought to establish a research agenda for volunteering for sports events and services, Green and Chalip (1998; p.15) note that: "*Volunteering is not an instantaneous or random decision. There are likely to be many antecedents to the decision to volunteer*". They draw on the exercise behaviour literature and suggest that there are a number of phases to such behaviours, including "*stages prior to adoption of exercise or sport*"(p.15). Similarly, in their study of volunteers in swimming, Burgham and Downward (2005) utilising regression analyses of questionnaire responses, demonstrate empirically that:

“...the decision to volunteer is not simply the same decision as committing hours to volunteer...the decisions to volunteer and then to commit time to volunteer are affected by different factors” (p.89)

This finding is further evidence for a staged process and, as also suggested by Green and Chalip (1998), a process in which the first stage or stages do not result in a change of behaviour, but rather a change of intention or attitude.

Similar evidence is available in the literature that has sought to examine how sports event coverage is used to stimulate tourist behaviours or visits. Chalip et al (2003), for example, examined the impact of coverage of the Gold Coast Honda Indy 300 (a motor racing event) on the tourist intentions of potential short-haul markets from New Zealand and long-haul markets from the USA. They found that the event had no direct impact on intention to visit, but that there was a significant positive impact on destination image. Thus, as with the volunteering work above, the suggestion is of an initial stage(s) that impact upon attitudes and further stages that affect behaviours. Chalip et al's (2003) work is substantiated by work by Green et al (2003; p.339), who analysed coverage of the NCAA Women's Final Four basketball tournament in the USA, and suggested that the aim in using sport events to generate tourism is *“to first bring the city into the consideration set of potential tourists”* and, in specific relation to the Olympic Games, by work by Richie and Smith (1991) who demonstrated, in a series of studies over several years, that the 1988 Winter Olympic Games *“increased the saliency and attractiveness of Calgary as a destination”*. This work is underpinned by a wide range of tourism literature that suggests a staged decision process (Crompton, 1992; Crompton and Ankomah, 1993; Peter and Olson, 2001; Um and Crompton, 1992) where the first stage(s) relate to attitude and awareness rather than behaviours. What the work reviewed here shows, is that sports events, especially the Olympic Games, can play an important role in these first stages.

Evidence of the role of the Olympic Games in the early stages of engagement also comes from research on Olympic sponsorship.

Kinney and McDaniel (1996) examined VISA's and McDonald's sponsorship of the 1996 Atlanta Olympic Games, and also the ambush marketing activities of American Express and Wendy's (a rival fast food retailer). They examined advertisements of all four companies containing Olympic themes and found, in all cases, that where consumers liked the advertisement, the strongest positive impact was on attitude towards the brand rather than on purchase intention. This research reinforces wider evidence of this process within the marketing literature (see Brown and Stayman's, 1992, meta-analytical review). However, the Kinney and McDaniel (1996) work suggests, once again, a potential role for sport events and the Olympic Games in affecting attitudes in the early stages of the behavioural process.

Chalip and Green's (1998) review of volunteering in relation to sports events and services refers to two models that have been used to illustrate and explain the processes of engagement with physical activity and sport, the Transtheoretical Model (TTM) (Prochaska et al, 1992) and the Exercise Adoption Model (EAM) (Brooks et al, 1996). In addition, section 3.2.1.4 briefly introduced the Psychological Continuum Model (PCM) (Funk and James, 2001). To supplement the material returned in the review, Box 3.2.2 explores the wider literature relating to these models to provide a context for their applicability to understanding the way in which physical activity, sport and health legacies might be leveraged from Olympic Games, sports events and sports franchises. The material in Box 3.2.2, particularly that on the transtheoretical model, reinforces the event related evidence returned in this review for a staged process of engagement. In particular, the review evidence shows that the early stages, where the changes are in attitude, awareness or intention, appear to be susceptible to messages delivered through the medium of sports events.

BOX 3.2.2

Models of Engagement with Physical Activity, Sport and Health

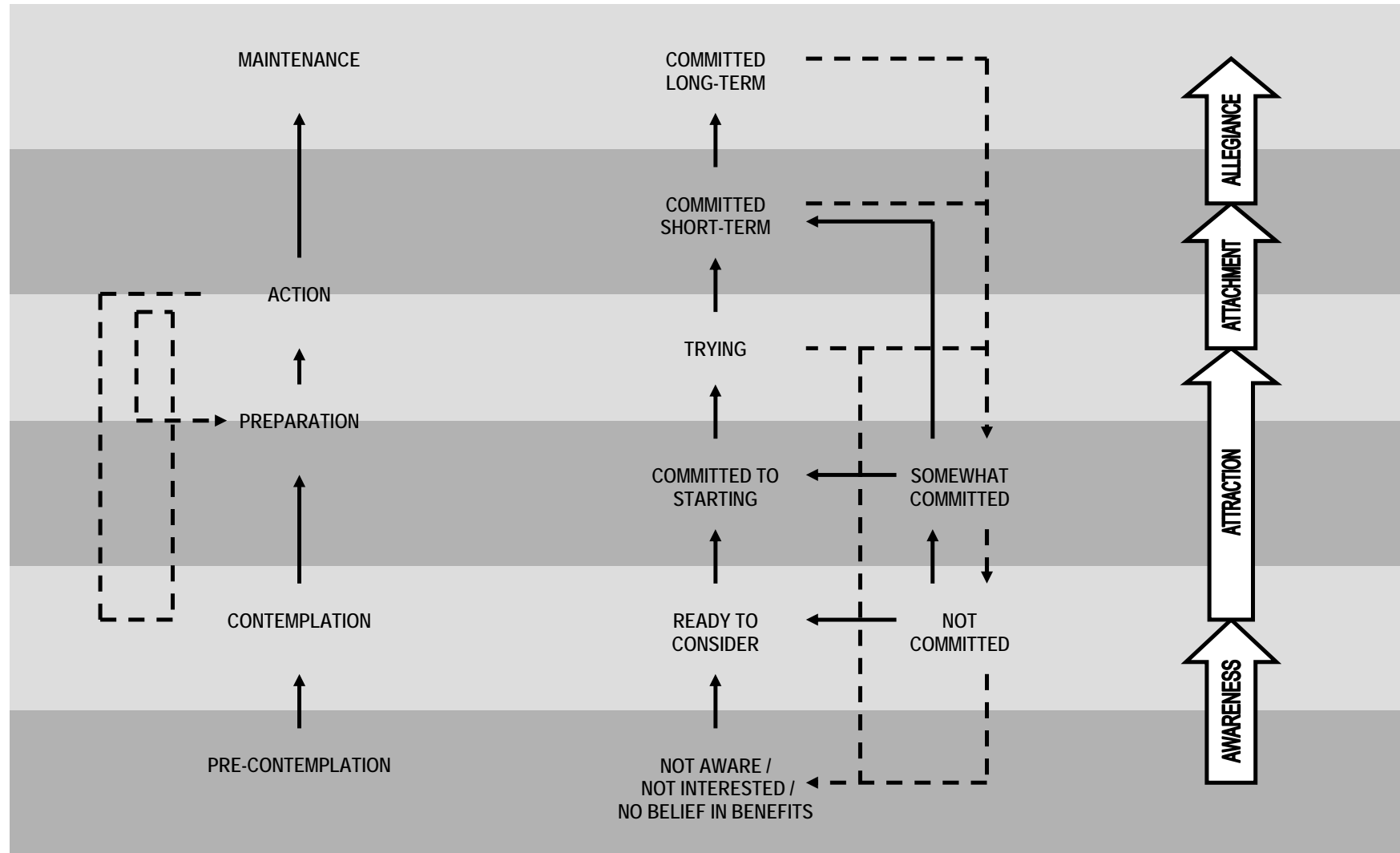
Three models of engagement with physical activity and sport have been used by the sources returned in the review – the Transtheoretical Model (TTM) (Prochaska et al, 1992), the Exercise Adoption Model (EAM) (Brooks et al, 1996) and the Psychological Continuum Model (PCM) (Funk and James, 2001). Each of these models suggest a staged process of engagement in physical activity and sport, although none of them were developed in an active participation context. The TTM was initially developed in relation to the treatment of smoking addiction (Prochaska, 1979) and later widely applied to sport and exercise (Marshall and Biddle, 2001); the EAM has its theoretical basis in the diffusion of innovations literature in marketing (Rogers and Shoemaker, 1971; Robertson, 1971); and the PCM was developed in relation to sport spectators (Funk and James, 2001), but has been applied to sport and sport events (Funk et al, 2007). These models are illustrated in relation to each other in figure 3.2.2. The details of these models are of less importance in this review; however, there are three important features to highlight. Firstly, the fact that the models were all developed in contexts other than physical activity and active sport, to which they have since been widely applied, reinforces a central assumption of this review: the transferability of processes across contexts. Secondly, they each describe initial stages or processes that relate to changes in attitude, intention and awareness rather than actual behaviour change. Thirdly, when illustrated alongside each other (figure 3.2.2), clear similarities can be observed between them.

It is, however, the transtheoretical model that has been most widely adopted and researched in the sport and exercise literature, with Marshall and Biddle's (2001) meta-analytical review identifying 71 studies that empirically examined at least one core construct of the TTM applied to exercise and physical activity and Spencer et al's (2006) systematic review reviewing 150 studies that applied the TTM to exercise. Furthermore, it has gained widespread currency in policy circles since Foster et al's (2005) systematic review, "Understanding Participation in Sport", for Sport England highlighted its widespread use as a basis for interventions. However, there are three key findings in relation to the TTM that are relevant to this review. Firstly, Spencer et al (2006; p. 436) found: "...a growing body of evidence suggesting that stage-matched interventions lead to forward stage progression and/or increased exercise behaviour". Consequently, interventions, initiatives and programmes seeking to progress people through the model are particularly successful if targeted to model stages, and this applies equally at the early (attitude, awareness and intention) stages of the model as it does at the latter behavioural stages (Spencer et al, 2006). Secondly, Marshall and Biddle's (2001; p.239) meta-analysis found the move between the pre-contemplation and contemplation stages was accompanied by a significant and robust increase in the perceived benefits of behavioural change, and also by a significant but smaller reduction in the perceived disadvantages of change. In fact, the effect size for the perception of the benefits of change was twice that for the perception of disadvantages of change, suggesting that interventions at this stage might be most effective if the benefits of behavioural change are emphasised. Thirdly, Marshall and Biddle (2001; p.229) note that:

“Original formulations of the model proposed that individuals moved through the stages in a linear fashion, but it is now recognised that stage progression is more likely to follow a cyclical pattern”

Furthermore, although in relation to the treatment of addictive behaviours, Prochaska et al (1992) demonstrate that the model is spiral in nature, rather than cyclical, and that those whose behaviour change is not sustained do not regress back to the start. Prochaska and DiClemente’s (1984) study of smoking cessation, for example, showed that of those that did not sustain cessation on the first attempt, only 15% regressed back to the pre-contemplation stage. This leads Prochaska et al (1992; p. 1105) to conclude: *“The spiral model suggests that most relapsers do not revolve endlessly in circles and that they do not regress all the way back to where they began”*. Thus, there is a ‘ratchet effect’ within the TTM, and that once people have progressed from pre-contemplation to contemplation, a return to the pre-contemplation stage is unlikely. This is illustrated by the dotted line in the TTM in figure 3.2.2.

Figure 3.2.2: Three Models of A Staged Process of Engagement in Physical Activity, Sport and Health Behaviours



THE TRANSTHEORETICAL MODEL
(Prochaska, DiClemente & Norcross, 1992)

THE EXERCISE ADOPTION MODEL
(Brooks, Lindenfield & Chovanec, 1996)

THE PSYCHOLOGICAL CONTINUUM MODEL
(Funk & James, 2001)

3.3) Question iii) – Evaluation

- *How has the leveraging of a range of opportunities from Olympic Games, sports events and sports franchises been evaluated?*

There were seven sources returned for question iii. The inductive thematic analysis initially resulted in the emergence of 16 themes, with the following four consolidated higher order themes being used to structure the analysis that follows:

- Attribution and Measurement
- Aggregation and Presentation
- Nature of Legacy
- Political Factors

The sources returned for question iii relate to the evaluation and measurement of economic, tourism or general event legacies rather than the evaluation of physical activity, sport and health legacies. As the discussions of questions i and iia have shown (sections 3.1 and 3.2.1), there is little evidence of physical activity, sport and health legacies and, consequently, even less relating to the way in which such legacies have been evaluated. However, as the discussions below will show, there are clear and relevant issues raised regarding both the principles and the technicalities of measuring physical activity, sport and health legacies arising from the broader event evaluation literature. Firstly, however, the text of section 3.3.1 describes the quality appraisal of the sources returned

3.3.1) Quality Appraisal

Table 3.3 summarises the quality appraisal of the sources included for question iii. Unlike previous questions, a significant majority of the sources (five of the seven included) are not reporting the results of a structured enquiry. Those that do (Faulkner et al, 2001; Ritchie and Lyons, 1990) report on the tourism evaluation programmes from the 2000 Sydney Olympics and the 1988 Calgary Winter Olympics respectively. Each of these programmes contained a number of

studies over a number of years and are widely recognised to be the most extensive Olympic evaluations conducted to date.

The remaining five sources are each overviews or critiques of the ways in which previous Olympic Games, sports events or sports franchises have been evaluated, and either build evaluation models (e.g. Preuss, 2005) or present wide-ranging critiques of the misuse or misapplication of evaluation techniques (e.g. Crompton, 2005). While they have not reported on their strategies for including previous research for review, they each present a range of important critiques based on the successes or, more often, the failings of previous studies.

Table 3.3: Summary of Quality Appraisal of the Sources Included for Question iii

Study no.	UK Based?	Field relevant to OHL?	Field	Aims relevant to OHL?	Findings relevant to OHL?	Structured enquiry?	Transparent and replicable?	Design appropriate to question	If not structured then what?	Informed consent obtained?	Representatives of population involved in design and steering	Ethical problems?
Faulkner <i>et al</i> (2001)	No, Australia	Yes	Olympics	Yes	Yes	Yes	No – methods not described	Appears so from results presented		N/a	N/a	N/a
Preuss (2007)	No, Worldwide	Yes	Sport Events	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Crompton (2006)	No, Worldwide	Yes	Sport Events and Franchises	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Ritchie & Lyons (1990)	No, Canada	Yes	Winter Olympic Games	Yes	Yes	Yes	Yes	Yes		Unclear	No	N/a
Kasimati (2003)	No, Worldwide	Yes	Olympics	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a
Barget & Gouget	No, Worldwide	Yes	Sport Events	Yes	Yes	No			Non-systematic secondary review/ analysis	N/a	N/a	N/a

Preuss (2005)	No, Worldwide	Yes	Sport Events	Yes	Yes	No			Non- systematic secondary review/ analysis	N/a	N/a	N/a
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As noted in the introductory paragraph to section 3.3, the sources included are all relevant to, rather than being about or derived from, evaluating physical activity, sport and health legacies. Once again (as in sections 3.1 and 3.2.1), this highlights the lack of previous empirical work in this area and leads to a call for further future research to develop evaluations and evaluation models for assessing physical activity, sport and health legacies from Olympic Games, sports events and sports franchises.

However, this lack of previous directly relevant research was not unexpected and, as such, question iii has been designed, like question iib, to capture sources relating to the evaluation of a range of opportunities from the Olympic Games, sports events and sports franchises. Consequently, given this broader scope, the quality of the sources returned for question iii is higher than for some of the other sections.

3.3.2) Attributions and Measurement

Four key issues emerged in relation to attributions and measurement: the first relates to the extent to which evaluations can isolate the generation of impacts to the event; the second relates to the problems in establishing baseline measures for any long term evaluation; the third relates to accounting for opportunity costs; and the fourth relates to a range of common errors and misrepresentations in evaluations.

Richie and Lyons (1990), reporting on aspects of one of the most sustained evaluations of an Olympic Games (a programme lasting more than five years), that of the 1988 Winter Games in Calgary, note that:

“The characteristics of the host region and its people, the prevailing international situation, and the evolving nature of the event itself all combine to produce a set of impacts which can be anticipated but which are difficult to predict accurately” (pp.22–23)

This is certainly something that is borne out in some of the complexities discussed in sections 3.1 and 3.2 so far in this review. However, one of the key problems for learning lessons about evaluations is that, as noted by Kasimati (2003; p.438) in her review of economic impact studies of the Summer Olympics, the overwhelming majority of studies have been *“ex-ante assessments...carried out to forecast the impacts of the Summer Olympics...the research significantly lacks ex-poste impact assessments”*. Alternatively, *ex-poste* studies (or more often secondary analyses) have been conceived retrospectively after the Games to try to show a particular effect. This is characteristic of many of the attempts to demonstrate that physical activity, sport or health have been leveraged from such events (see section 3.1).

Preuss (2007), in his review of the way in which event legacies are measured, and Crompton (2006), in his critique of the conduct of economic impact studies, both discuss the problems with using structural or macro-data (such as national GDP figures or general census or population data), collected for far more general purposes than assessing the impact of a particular sport event, to examine the impacts of such events. The first problem with such data is that any changes in the economy (or, in the case of this review, in physical activity or sport participation rates, or health related behaviours) are impossible to isolate to the effect of an event, even one as large as the Olympic Games. This leads to a second related problem: that even if it was possible to isolate changes to an event, macro-data is rarely sensitive enough to pick up changes because:

“...mega-sport events are a relatively small enterprise compared with the overall economy of most countries...[Furthermore,]legacies are even more difficult to detect, because they are a smaller effect than [direct] impact spread over many years” (Preuss, 2007; p.215)

Consequently, rather than attempting to detect change from macro-data, Faulkner et al (2001; p. 236), in their discussion of the monitoring of the tourism impacts of the Sydney 2000 Olympics, note that: *“the challenge is to identify particular effects, and then to*

attribute those effects to particular leveraging activities". As such, the need is to both identify changes and attribute those changes to particular activities or programmes. This cannot be done using macro-data.

Macro indicators and benchmarks are the two sources of baseline measurement discussed by Barget and Gouget (2007), Kasimati (2003) and Preuss (2007) that have been widely used in the past. Each are dismissed as effective baseline measures because they are static, whereas a true baseline is dynamic over time. That is (in relation to the topic of this review): the 'without event' scenario would still see changes in physical activity and sport participation and in health related behaviours over time. Preuss (2007; p.215) also dismisses the benchmark approach (where another city and country that has hosted a similar event is used as a benchmark for comparison) due to *"both the uniqueness and complexity of events in a fast changing environment"*, thus echoing Richie and Lyon's (1990) comment presented earlier.

An alternative to the use of a 'without event' case suggested by some authors cited by Preuss (2007) is to use macro data to build a 'control case' (Hotchkiss et al 2001; Oldenbloom, 2006), either by examining a 'reference case' of a city or country of similar size over the same time period, or by trend extrapolation for the host area. However, Preuss (2007) believes that, while this is *"better than guessing [it is] still highly error prone"* (p. 216).

However, having critiqued other approaches, Preuss (2007) does suggest a *"best available"*, but still undoubtedly flawed, approach. The suggestion is to use:

"...[an] approach based on the long-term plans for a city...[such] plans for future city development represent the 'without case', the city development that will take place without the event." (p.217)

This is designed to be a dynamic baseline that measures the 'value-added' by an event. In relation to physical activity, sport and health it

would require an assessment of what types of initiatives would have been implemented without the 2012 Games to build a without case as a baseline for comparison.

Such discussions of the dynamic nature of baselines lead to a discussion of the consideration of the opportunity costs of Olympic-related programmes. Kasimati (2003), Crompton (2007) and Preuss (2005; 2007) all highlight the importance of taking account of opportunity costs in any evaluation. Thinking about such opportunity costs is important in establishing the dynamic 'without event' baseline discussed above. However, opportunity costs also exist in the 'with event' case. In relation to tourism, Crompton (2007; p. 75) describes the opportunity cost as follows:

“Government investment in tourism projects and programmes will have an economic impact, but the key question is, compared to what? Does government spending on tourism stimulate the economy more than other kinds of investment?”

Re-phrased for physical activity, sport and health, Crompton's question would be:

Initiatives and interventions related to the Olympic Games may have an impact on intention, participation and behaviour, but the key question is, compared to what? Do Olympic-related initiatives have a greater effect on intention, participation and behaviour than other non-Olympic-related initiatives?

As such, the issue here is both about the alternative initiatives that could have been resourced, and about the alternative non-Olympic emphases that existing initiatives could utilise.

A further issue relating to opportunity cost highlighted by Crompton (2007) and Preuss (2007), is that some additional funding is likely to be made available as a result of the Olympic Games that would not otherwise have been available for any programmes relating to physical activity, sport and health (see section 3.3.5). As such, there is no

resource opportunity cost to physical activity, sport and health of such funding. Preuss (2007; p. 219) characterises such funding as “*autonomous resources*”.

Five of the seven studies included for question iii (Crompton, 2007; Kasimati, 2003; Faulkner et al 2001; and Preuss, 2005; 2007) all discuss to varying extents a range of common mistakes made in evaluations of sports events, and these can each be applied to the evaluation of physical activity, sport and health:

- *Inappropriate Aggregation* (Crompton, 2007; Preuss, 2005; 2007) – for tourism this relates to the failure to remove residents from the evaluation. For physical activity, sport and health, it would relate to a *failure to remove those already active*. This may be because participants in programmes are counted without disaggregation.
- *Inclusion of Time-Switchers* (Crompton, 2007; Preuss, 2005; 2007) – this relates to counting those that would have spent their money in the local economy at another time, therefore there is no additional effect. For physical activity, sport and health, it would relate to *including activity switchers (those switching between physical activities or sports)* as new participants.
- *Abuse of Multipliers* (Crompton, 2007; Preuss, 2005; 2007) – this relates to overemphasising the effect of money re-circulating in the economy. For physical activity, sport and health, it would relate to those people who increase the frequency of their participation and, in particular, *misrepresenting increased participation frequency as increased numbers of participants*.
- *Expanding the Project Scope* (Crompton, 2007; Faulkner et al, 2001; Preuss, 2005) – this simply refers to including economic activity not directly related to the event in question. For physical activity, sport and health it would simply refer to *including non-attributable effects*.

- *Inclusion of 'Consumer Surplus'* (Crompton, 2007; Kasimati, 2003)
 - this is related to the idea that populations in general benefit from facility development whether they use such facilities or not. While this is a legitimate impact, the problem is that it is often counted as a direct economic impact. For physical activity, sport and health, the equivalent mistake would be to *count increased opportunities to participate and increased facility provision as increased participation.*

As the discussions in previous sections have shown, each of these errors have been made, or their potential to occur highlighted, in at least some of the assessments or discussions of the potential for sports events to raise physical activity or sports participation or impact upon health related behaviours.

3.3.3) Aggregation and Presentation

The central message emerging under this theme is that impacts that are presented in an aggregated way can often obscure or obfuscate the detail of impacts, and the impacts on particular sectors or communities.

Both Barget and Gouget (2007) and Faulkner et al (2003) comment on the way in which impacts are presented, with the latter noting in their work on Sydney that:

"If claims about outcomes can be phrased in terms of aggregate impacts and piecemeal impressions, claims that the specific objectives of particular stakeholders were attained would be difficult to refute. In any case, the interrelatedness of agendas complicates the isolations of specific outcomes. Nevertheless, in the process, the opportunity to learn from the Games has been lost"(p. 236)

As such, physical activity or sport outcomes from sport events can be presented as part of social outcomes, or health outcomes can be presented as being part of environmental improvements, with such aggregated generalities being supplemented by selected anecdotes to

reinforce the point. Similarly, Kasimati (2003) notes that geographical aggregation often obscures negative impacts on particular communities or localities. Such practices allow positive outcomes for physical activity, sport and health to be claimed, but obscure their precise nature, and make it all but impossible to extract lessons for the future.

A similar issue is the conflation of multiple agendas. For example, counting 'existence value' (Barget and Gouget, 2007), 'consumer surplus' (Crompton, 2007 – see section 3.3.2) and/or 'psychic income' or 'community self esteem' (Crompton, 2004; Sparvero and Chalip, 2007 – see section 3.2.2.3) in a single measure of community impact. The lesson that this suggests in relation to this review is that physical activity, sport, health, wellbeing and quality of life outcomes and processes might best be evaluated separately as they may relate to different agendas. If they are evaluated together, the temptation will be to present the total composite impact as the impact for each of the individual areas, which would vastly overestimate any potential effect (in either direction).

3.3.4) Nature of Legacy

Key issues arising under this theme were that there are a number of aspects of legacy that are rarely measured, considered or even acknowledged in evaluations. Barget and Gouget, (2007), Crompton (2007), Kasimati (2003), and Preuss (2005; 2007) between them highlight the following issues:

- Negative and neutral aspects of legacy are rarely considered. Political discourse tends to assume that 'Legacy' and 'Positive Legacy' are the same thing. Some of the issues highlighted in section 3.3.2 (e.g. opportunity cost and activity switching) may not be evaluated because there is no recognition that impacts or legacies can be negative or neutral.
- Legacy is assumed to be an entirely post-event phenomenon. However, Preuss (2007) cites Weed's (2008) concept of 'Pregnancy

Effects' that are leveragable in the pre-Games period but that are rarely part of aspirations or evaluations. This is particularly important for leveraging physical activity, sport and health, the potential for which appears to be almost entirely in the 'pregnancy' period.

- Preuss (2007) suggests that most evaluations and strategies only consider legacies that are planned, tangible and positive, but that there are also a range of intangible, unplanned and negative legacies that are rarely considered. He illustrates this through a 'legacy cube' which shows that a planned, tangible and positive legacy is only one of eight possible legacy combinations.

Two further issues arise from these rarely-considered aspects of legacy. The first is that resource scarcity (where resources may be, *inter alia*, people, finance, or facilities) can limit the potential planned positive impact of legacies, and that this needs to be considered in legacy planning (Kasimati, 2003; Preuss, 2007), either in the design of programmes to account for such constraints, or the allocation of resources to address them.

The second issue is that legacy strategies can create unintended negative 'aversion' effects which are very rarely measured (Crompton, 2007; Kasimati (2003; Preuss, 2005; 2007). For tourism this would include potential visitors being put off visiting a city because a sport event is taking place there (Crompton, 2007). For physical activity, sport and health, this would relate to people being put-off participation or behaviour change as a result of Olympic-related programmes or messages (see discussions on the potential negative impacts of elite sport role models in section 3.1.5 and of a lack of support for the Games, event or team in general in sections 3.2.1.2 and 3.2.2.2). As such, there are two issues: one is to try to plan to avoid such 'aversion' effects, the other is to ensure that they are accounted for in any evaluations.

3.3.5) Political Factors

This final theme addresses political factors that should either be a part of evaluations of event legacies, or that should be recognised in assessing previous evaluations of event impact. They are all related to some extent to the degree of ‘political will’ that exists to make an event successful.

Crompton (2007), Kasimati (2003), Faulkner et al (2001) and Preuss (2007) all suggest that ‘political will’ itself might reasonably be evaluated, as this can affect the success of event-related initiatives and investments. In particular, it can lead to the securing of the additional “*autonomous resources*” (Preuss, 2007; 219) mentioned in section 3.3.2 that would otherwise have been unavailable to the sector. As such, major projects such as the Olympic and Paralympic Games have the potential to generate additional resources for particular policy sectors such as physical activity, sport and health, and this potential should feature in any evaluation.

More negatively, ‘political will’ can lead to evaluations being compromised as there can be both political and economic pressure on evaluators to demonstrate a positive impact (Crompton, 2007; Kasimati, 2003), and this systematic bias in the literature should be considered when reading previous event evaluations. Reinforcing Kasimati’s (2003) point that most evaluations are *ex-ante* predictions of impact (see section 3.3.2), Faulkner et al (2003; p.235) note that the lack of *ex-poste* or long-term evaluations:

“...may reflect a form of ‘policy fatalism’. That is, having committed public resources to the event on such a large scale, the responsible politicians and their advisors regard any evaluation of the outcomes of this investment as being superfluous or, more importantly, potentially politically embarrassing”

Furthermore, this may be magnified when the event concerned is the Olympic and Paralympic Games, as it is only going to come to an area once in a generation at most. Consequently, there is no incentive for local, regional, or perhaps even national politicians to commit resources to *ex-poste* or long-term evaluations that will only be of

benefit to those seeking to leverage positive outcomes from future Games in other countries (Faulkner et al, 2003; Kasimati, 2003). While this view seems to make intuitive sense, it is somewhat short-sighted because, as this review has demonstrated, many experiences are transferable between and across events, and most major cities hosting Olympic and Paralympic Games will inevitably be seeking to host further major sport events in the future.

3.4) Limitations of the Review

The review took a comprehensive approach to the literature searching but was limited by a number of factors. Firstly, as noted elsewhere, the quality of the directly-relevant evidence base is limited by the lack of an evaluation literature in the field. In order to take an inclusive approach, the relevant literature was included but subjected to only limited quality assessment. This is one key limitation of this piece of work with the implication that in the absence of a clearer evidence base comprising more rigorous evaluations, the results of this review should be treated with some caution.

All decisions to filter and exclude sources were taken by at least two team members (see section 2.2). However, for those sources included in the final review data was extracted from each source, and quality appraised, by one contributor only due to resource constraints, rather than the double extraction more usual in systematic review. Given the acknowledged low quality of the evidence, the resources required for a double extraction process at this stage were judged to be disproportionate to the likelihood of gaining further insights from such a process. As such, whilst every care has been taken to ensure accuracy, the possibility of human error cannot be ruled out.

Finally, each included source was allocated to the most relevant section, rather than being screened for inclusion in all sections as would have been the ideal approach. This was due to resource constraints and the need to streamline the process. There is inevitable overlap inherent in a review that includes many secondary sources in a field of scant research, and screening all sources for inclusion in all sections would probably have added somewhat to this, rather than providing further insights. Consequently, the approach was for the team to communicate and consult extensively about the substantive content of each section. However, there is a possibility that relevant material may be missing from one or more sections due to the source being primarily included in another.

4) INTERPRETATION OF IMPLICATIONS OF RESULTS FOR LONDON 2012

This section presents our interpretation of the implications of the review results described in section 3 for the planning and development of physical activity, sport and health legacies from the 2012 Games. Here we are seeking to interpret the *best evidence* available to suggest strategies that might be employed to leverage physical activity, sport and health behaviours from the 2012 Games.

4.1) Developing Physical Activity, Sport and Health Legacies from the 2012 Games

1. The evidence in sections 3.1 and 3.2 concurs with the increasingly accepted view that merely hosting the 2012 Games is not enough to develop a sustained legacy. ***Legacy must be leveraged***, and:

- ***PLANNING FOR A PHYSICAL ACTIVITY, SPORT AND HEALTH LEGACY MUST BE PART OF AN INTEGRATED LEGACY STRATEGY TO INCLUDE COMMUNITY AND EDUCATIONAL PROGRAMMES, OPPORTUNITIES FOR COACHING AND WELL-PLANNED, ACCESSIBLE FACILITIES WHICH SERVE AN EXISTING NEED.***
-

2. Evidence from a range of sectors (see sections 3.2.1.2 and 3.2.2.2) is that the development of a legacy in any sector (including physical activity, sport and health) from the 2012 Games is dependent on the wider legacy effort and, in particular, that:

- ***COMMUNITY SUPPORT FOR THE HOSTING OF LONDON 2012 IS A NECESSARY PRE-CONDITION FOR THE EFFECTIVENESS OF ANY PROGRAMMES OR INITIATIVES SEEKING TO PROMOTE PHYSICAL ACTIVITY, SPORT OR HEALTH THROUGH LONDON 2012.***

In particular, it should be noted that the use of the 2012 Games to promote physical activity and sport may result in ‘aversion’ effects (i.e. may stimulate negative responses that may put people off

physical activity and sport) among those who do not support the hosting of the 2012 Games in London and/or the UK.

3. The evidence (and the lack of evidence) from section 3.1 suggests that behaviour change in relation to physical activity, sport and health and any link to the 2012 Games will be a phenomenon with multi-factorial causality which will arise in different patterns for different sectors and different age groups. As such:

- ***THERE ARE A NUMBER OF FACTORS THAT MAY BE LEVERAGABLE THROUGH LONDON 2012, AND A NUMBER THAT ARE NOT RELATED TO THE GAMES, THAT MAY COLLECTIVELY IMPACT UPON PHYSICAL ACTIVITY, SPORT AND HEALTH BEHAVIOURS IN AN UNEVEN WAY FOR DIFFERENT GROUPS.***

There is some support in the literature for the notion that the development of confidence and self-efficacy in individuals and communities may be leveragable through the 2012 Games, with further, although weaker, evidence that social capital and community pride might contribute to the raising of expectations about activity levels.

4. There is widespread evidence across a range of sectors (see sections 3.2.1.4 and 3.2.2.5) that there is a staged process of involvement to which sports events can contribute, therefore:

- ***LONDON 2012 HAS THE POTENTIAL TO CONTRIBUTE TO MOVING PEOPLE BETWEEN STAGES OF ENGAGEMENT WITH PHYSICAL ACTIVITY AND SPORT.***

A staged process of engagement is supported by the wider literature in sport, health, physical activity, tourism, volunteering and consumer behaviour (see, in particular, section 3.2.2.5).

5. As prior participation and experience predicts participation stimulated by sports events across all sectors (see sections 3.2.1.3 and 3.2.2.4):

- ***FOR SPORT – LONDON 2012 IS LIKELY TO BE MOST EFFECTIVE AT RAISING PARTICIPATION FREQUENCY IN SPORT AND THE MOST FORMAL PHYSICAL ACTIVITIES AMONG CURRENT OR LAPSED PARTICIPANTS WHO ARE ALREADY POSITIVELY ENGAGED WITH SPORT.***

Although this is a useful outcome, it is to a certain extent an ‘easy win’ and does not address the London 2012 Legacy Plan commitment to target the least active. Furthermore, this process may result in activity switching (see section 4.2) rather than in increasing participation levels and evidence for its sustainability is limited. It is also a different process to that required to target non-participants described in points 6 and 7 below, and it draws on a ‘demonstration effect’ (see sections 3.1.4 and 3.2.1.4) which must still be leveraged. However, other evidence suggests that attempting to leverage a demonstration effect may create ‘aversion’ effects in some non-participants (see section 3.1.5).

6. Evidence from tourism, volunteering and consumer behaviour stimulated through sports events (see section 3.2.2.5) suggests that such events can most effectively contribute to the early stages of behaviour change in which the changes are in attitude, awareness or intention rather than in behaviour itself. Consequently:

- ***FOR PHYSICAL ACTIVITY – LONDON 2012 MAY HAVE MOST POTENTIAL TO STIMULATE CONTEMPLATION OF PHYSICAL ACTIVITY (RATHER THAN SPORT), PARTICULARLY IN THE COMMUNITY, AMONG NON-PARTICIPANTS (PRE-CONTEMPLATORS).***

Evidence suggests that this may be through the stimulus of the Olympics as an event rather than as a sport competition, what might be termed a 'festival effect' (see 7 below). Evidence (from the wider physical activity and health literature) also suggests (see section 3.2.2.5) that there is a 'ratchet effect' in the move from pre- or non-contemplation to contemplation, and that this move is associated with a significant increase in the appreciation of the benefits of physical activity, thus suggesting the need for an approach that focuses on the positive aspects of participation rather than on the negative consequences of non-participation. A final issue relating to moving people from pre- or non-contemplation to contemplation of physical activity is that it is difficult to measure and therefore to claim as a successful outcome.

7. There is a clear role for supplemental local activities related to the 2012 Games (see section 3.1), and such activities will be most effective in stimulating contemplation of physical activity if they promote the 2012 Games as a festival that is bigger than and beyond sport (see section 3.2.2.3). Consequently:

- ***THE PROMOTION OF PHYSICAL ACTIVITY (OR VERY INFORMAL SPORT-RELATED ACTIVITIES) THROUGH LONDON 2012 AMONG THE LEAST ACTIVE WILL BE MOST EFFECTIVELY SUPPORTED BY PROMOTING LONDON 2012 AS A SIGNIFICANT NATIONAL CELEBRATION THAT TRANSCENDS SPORT AND IS RELEVANT TO LOCAL (OR CULTURAL) COMMUNITIES, WITH THE BENEFITS OF PARTICIPATION BEING LINKED TO COMMUNITY PARTICIPATION RATHER THAN HEALTH.***

The key success factor here is likely to be the ability to harness the 2012 Games as a nationally significant festival in a way that is relevant to local or cultural communities (see sections 3.1.4, 3.1.6 and 3.2.2.3). The 2012 Games will need to be promoted as a four-year festival, not a two week sport competition, and physical activity legacy plans should be integrated in the broader legacy

effort, particularly within the Cultural Olympiad and utilising the 2012 'Inspired Mark' for non-commercial projects.

It is important to note here that the process to engage *new participants* is not one where individuals watch the 2012 Games and then take-up sport – this is the unsustainable 'Wimbledon effect' based on flawed assumptions about 'demonstration' effects. To be effective, the process must harness the 'festival effect' through a series of events, initiatives and programmes during the next four years that are associated with the 2012 Games as an enjoyable and prestigious festival, at which physical activity and very informal sport-related activities are promoted and/or encouraged. Such events, initiatives and programmes should be convenient in both timing and location, involve minimum cost at the point of use and be relevant to the lives of local or cultural communities.

4.2) Evaluating the 2012 Games' Physical Activity, Sport and Health Legacies

1. Virtually all previous attempts to locate, assemble or provide evidence for an 'Olympic effect' on physical activity, sport and health (and, to a lesser extent, for an effect on tourism and macro-economic activity) have used generic structural population level data or surveys (see section 3.3.2). This is flawed because:

- ***STRUCTURAL OR MACRO-LEVEL MEASURES CANNOT ATTRIBUTE CHANGES IN PHYSICAL ACTIVITY, SPORT AND HEALTH BEHAVIOURS TO LONDON 2012.***

Furthermore, even if attribution were possible, such surveys are rarely sensitive enough to detect attributable change. This is perhaps one of the reasons for the sparsity of robust direct evidence of an 'Olympic effect' on physical activity, sport and health in respect of questions i (section 3.1) and iia (section 3.2.1). It is important to note here the difference between an Olympic effect that motivates participation, and an Olympic effect which draws additional resources into the sector which are then used to develop participation.

2. The lack of specific evidence on physical activity, sport and health has meant that those invested in the success of the Olympic Games in generating a legacy (i.e. governments, cities and organising committees) have often obfuscated (see section 3.3.3).

Consequently:

- ***PREVIOUS GAMES HAVE RESORTED TO COMPOSITE GENERIC MEASURES OF SOCIAL IMPACT, SUPPLEMENTED BY ANECDOTE, WHICH OBSCURE THE LACK OF EVIDENCE OF EFFECTS ON SPECIFIC SECTORS SUCH AS PHYSICAL ACTIVITY, SPORT AND HEALTH.***

This has often also involved the use of inappropriate proxies as measures of participation, such as increased facilities, or increased availability of opportunities. It should be noted, however, that there are other stakeholders interested in Olympic legacies (e.g. Primary Care Trusts, Physical Activity Networks) who are more likely to be the victims of, rather than colluders in, such obfuscation.

3. The discussions throughout section 3, but in particular those in section 3.3, suggest that:

- ***AN EVALUATION OF THE PHYSICAL ACTIVITY, SPORT AND HEALTH LEGACY OF LONDON 2012 SHOULD:***

- I. ***ALLOW FOR THE DISAGGREGATION AND SEPARATE PRESENTATION OF OUTCOMES FOR PHYSICAL ACTIVITY, FOR SPORT AND FOR VARIOUS ASPECTS OF HEALTH***

Although physical activity, sport and health goals overlap, they are not the same, and a composite measure from which outcomes for each sector cannot be disaggregated should be avoided.

- II. ***USE PRIOR (PRE-OLYMPIC) LONG-TERM PLANS TO ESTABLISH A BASELINE 'WITHOUT OLYMPIC GAMES' CASE***

Such a baseline accounts for opportunity costs and, although not perfect, is the best option to establish a true baseline that accounts for dynamic effects, thus allowing for the measurement of 'added value' from the 2012 Games (see III). In practice, this may be most effectively achieved by asking of each new planned development: "*what would be done in this situation if London was not hosting 2012?*".

- III. ***FOCUS ON 'ADDED VALUE' (ATTRIBUTABLE CHANGE)***

An evaluation that cannot confidently attribute the changes in participation or behaviour to a 2012 Games effect will be of little or no value. In practice, this is likely to require direct evaluations at programme or initiative level rather than

structural or macro-level measures of participation or behaviour.

IV. *MATCH 'ADDED VALUE' TO THE LEVERAGING STRATEGIES THAT GENERATE IT*

An evaluation of the processes by which outcomes (positive or negative) are generated is essential for developing future strategy seeking to leverage participation and behaviour from major events.

V. *EVALUATE 'NET' RATHER THAN 'GROSS' EFFECTS*

Evaluations must account for those already active, for activity switchers, for increases in participation frequency, for any potential 'aversion' effects and for resource and facility constraints in order to gain an accurate measure of participation and behaviour change attributable to the 2012 Games.

VI. *ACCOUNT FOR THE IMPACT OF POLITICAL WILL*

The impact of political will to use the 2012 Games to affect physical activity, sport and health behaviours is likely to be manifest in an increase in resources available to physical activity, sport and/or health. The size and 'added value' of such increased resources should also be evaluated, but should be disaggregated from an Olympic effect on motivation.

5) CONCLUSIONS

The over-riding conclusion of this review is that the direct evidence base to inform the development of physical activity, sport and health legacies from the 2012 Games is poor. Therefore there is a clear need for more sustained research and more robust evaluation to inform the development of such legacies (see sections 3.3, 4 and 6). In terms of the evidence returned in this review, for question i. (outcomes) the evidence was generally sparse and of low quality, whilst for question ii.a. (processes relating to physical activity, sport and health), although the quality of the evidence was better, its direct relevance was often tangential. However, this was not unexpected, hence question iib. and question iii. were designed to pick up broader evidence on processes and evaluation strategies from the broader event impact and leveraging literature. For these questions, the quality of the evidence was higher although, albeit by design, direct relevance was still lacking. Consequently, the conclusions that follow and the preceding interpretation of implications (section 4) are based on low quality evidence from the physical activity, sport and health sector, or evidence that has been transferred from other sectors, albeit of better quality.

Perhaps the single unequivocal conclusion is that the 2012 Games (or any major sports event or sport franchise) is not a magic bullet to raise participation in physical activity and sport, or to encourage positive health behaviours. As section 3.1 showed, the 2012 Games can contribute, but as one among a number of factors that might contribute to physical activity, sport and health policy and participation in a set of complex interactions that are not well understood. Furthermore, the evidence for a staged engagement with physical activity, sport and health, both in general and through sports events and franchises, highlights quite clearly that the 2012 Games will not have the power to take an average non-participant in physical activity and sport and transfer them into someone who is exercising at recommended levels (30 minutes for either three or five times a week).

However, in seeking to identify the areas where the 2012 Games *might* most effectively contribute (as part of a wider set of forces) to participation policy for physical activity, sport and health, two distinct processes and target groups are suggested.

1. FOR SPORT: There is some limited evidence from the physical activity, sport and health sectors that the 2012 Games *may have the potential* to contribute to increasing the frequency of participation in sport or the most formal physical activities of existing participants, or to rekindling interest in lapsed participants. The process by which this occurs is likely to be a 'demonstration effect' in which people are inspired by former, current or existing athletes, Olympians or Paralympians. This effect must still be strategically leveraged over the four year Olympiad and beyond. However, there are several *strong caveats* to this. Firstly, this approach will only work with current or past participants who are already positively engaged with sport; secondly, this approach may result in a 'neutral' effect on individual participation as a result of 'activity switching'; thirdly, the approach may cause 'aversion' effects in non-participants, who may be put off by the unattainability and inaccessibility of elite sport and elite sports people.
2. FOR PHYSICAL ACTIVITY: The application of evidence from other sectors to physical activity, sport and health suggests that the 2012 Games *may have the potential* to contribute to stimulating the contemplation of physical activity or the most informal sport-related activities among those who have not previously contemplated participation (pre-contemplators). The process by which this is likely to occur might be termed a 'festival effect', in which contemplation is stimulated by the 2012 Games as a four year festival that is perceived as transcending sport, and which couches the benefits of participation in terms of social and community benefits rather than physical or health-related benefits. The *strong caveat* here is that this is an untried and complex process. Such a 'festival effect' derives from the 2012 Games being promoted as a national festival that is bigger than and beyond

sport but that is also rooted in the lives of local and cultural communities, thus creating a strong desire to participate in some way in an event that is both nationally significant and locally or culturally relevant. The goal for physical activity participation policy will be to satisfy the desire to participate through physical activity or the most informal sport-related opportunities presented as fun community events or programmes, for which the achievement of a 'critical mass' may be important. The key to leveraging physical activity through this process is to de-emphasise the sporting element of the 2012 Games and promote the festival element.

An important pre-condition for both of these processes is the positive engagement of the population with the hosting of the 2012 Games. If people are generally negative about the hosting of the 2012 Games in London and/or the UK, then they will be beyond the reach of (if not actively averted by) any initiatives that seek to use the 2012 Games to affect behaviour. Similarly, planning for a physical activity, sport and health legacy must be integrated with the general 2012 legacy effort. This is particularly important for the second process outlined above, in which integration with the Cultural Olympiad and the branding of the 'Inspired Mark' may be significant. In each of the processes, the effect is not one which is stimulated post-Games as a result of a two-week sport competition, but one that is facilitated by a four year national event. The development of a programme over four years may be highly significant in developing sustainable participation rather than the short term post-event 'spike' in participation experienced by other sports events.

6) RECOMMENDATIONS

The same caveats about the derivation of recommendations from low quality evidence (or evidence that has been transferred from other sectors) apply as those noted in the conclusions in section 5. However, given such caveats, our recommendations for various stakeholders are:

For all Stakeholders

- Legacy plans for physical activity, sport and health must be integrated with the wider legacy effort.
Physical activity, sport and health development programmes should be integrated, in particular, with the Cultural Olympiad, and should be granted use of the 'Inspired Mark' to engender a feeling of being part of the wider four-year festival.
- The processes and outcomes of the 2012 Games' physical activity, sport and health legacy effort must be evaluated contemporaneously from the start.
It is, of course, essential that the physical activity, sport and health legacies are effectively evaluated. This requires an ongoing programme throughout and beyond London's four year Olympiad that focuses on the evaluation of programmes and initiatives rather than the retrospective use of structural or macro-level population data.
- It must be recognised that the development of a physical activity, sport and health legacy is not a 'one-size-fits-all' programme.
In particular, it is important for stakeholders at all levels to understand that what may motivate some groups through the 2012 Games may de-motivate others. Care must be taken to target messages towards those who are likely to react positively to them.

For Government, LOCOG and National-Level Olympic Stakeholders

- Attention must be directed to putting forward a convincing case to the British public for the hosting of the 2012 Games in London, and for the pregnancy and legacy benefits of doing so.
Without positive engagement, any legacy programmes will be inefficient. Stakeholders not only need to make the case for a positive legacy, but must also explain how and for whom such a legacy will be developed.
- The 2012 Games must be consistently promoted as a significant national festival that is bigger than and beyond sport.
The 'bigger than and beyond sport' theme, if thoughtfully employed, should allow for the concurrent promotion of sporting messages to those who are susceptible to them, and of festival messages to those who are less engaged with sport. Effort should also be directed to emphasising the relevance of the national event to local and cultural communities.

For Stakeholders in the Physical Activity, Sport and Health Sectors

- Programmes and initiatives must be 'stage-matched' to current levels of engagement with physical activity, sport and health-related behaviours.
While all stakeholders must recognise that a 'one-size-fits-all' programme is both inappropriate and counter-productive, stakeholders in physical activity, sport and health must design (and help others to design) stage-matched initiatives and projects incorporating aspects of the 2012 Games. Such stakeholders must also engage in advocacy work to ensure that others realise the need for such 'stage-matching'. Initiatives that seek to increase sport participation frequency among those already positively engaged with sport (through a demonstration effect) and that seek to encourage the contemplation of physical activity or the most informal sport-related activities among non-participants (through a festival effect) are likely to be the most effective.

- Programmes and initiatives relating to or incorporating the 2012 Games must be integrated with wider physical activity, sport and health programmes and with existing needs and policy goals.
The 2012 Games is one among a number of factors that impact upon participation. The importance of such other factors should not be ignored and overlooked in the rush to incorporate the 2012 Games into programmes.

For Regional Stakeholders

- Opportunities should be identified to incorporate physical activity, sport and health legacy goals into wider 2012 legacy activities.
In particular, opportunities should be identified that include physical activity, sport and health legacy goals within wider legacy events, rather than attempting to develop a separate set of physical activity, sport and health legacy activities. Regional themes should cut across all legacy activities.
- Regional Resources (physical, human and economic) that can provide a local dimension to the national festival should be identified, and programmes to capitalise on such resources promoted.
A 'regional audit' of such resources may be appropriate, identifying in particular regionally specific opportunities to develop 'event-themed' initiatives that will engage and motivate local and cultural communities.

For Local Stakeholders

- Local physical activity, sport and health legacy programmes, events and initiatives must tap into the feeling of 'national significance' but ensure that they remain relevant to local communities.
As at regional level, legacy efforts should be integrated across sectors, but aspects of local identity and engagement must be a key part of physical activity, sport and health legacy activities, drawing on local history, culture and personalities to make the national festival locally significant.

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APPENDIX A THE INTERNATIONAL PANEL

Professor Laurence Chalip is Director of the Sport Management Programme at the University of Texas at Austin, and is the world's leading authority on the economic (Chalip, 2004¹¹) and, more importantly, the social leveraging of sport events (Chalip, 2006¹²; O'Brien & Chalip, 2007¹³). He was a key figure in the evaluation of the Sydney Olympic Games in 2000 (Chalip, 2002¹⁴; Green & Chalip, 2004¹⁵) and was named the International Chair of Olympism in 2000 by the IOC and the Centre for Olympic Studies (Barcelona). Professor Chalip is the Founding Editor of *Sport Management Review*, the former Editor of the *Journal of Sport Management*, Associate Editor of the *Journal of Sport & Tourism* and was the 2005 recipient of the Earle F Zeigler Award for services to sport management scholarship from the *North American Society of Sport Management*.

Professor Kristine Toohey is Head of the Department of Tourism, Leisure, Hotel and Sport Management at Griffith University, Australia. She was the author of the official report of the Sydney Olympics (Toohey, 2002¹⁶) and has written extensively on the social science aspects of the Olympic Games (Toohey & Veal, 2004¹⁷), their potential

¹¹ Chalip (2004) Beyond Impact A General Model of Sport Event Leverage. In B. Ritchie & D. Adair (eds.) *Sport Tourism: Issues, Interrelationships and Impacts*. Clevedon: Channel View

¹² Chalip, L. (2006) Towards Social Leverage of Sport Events. *Journal of Sport & Tourism*, 11(2): 109–127.

¹³ O'Brien, D. & Chalip, L. (2007) Executive Training Exercise in Sport Event Leverage. *International Journal of Culture, Tourism and Hospitality Research*, 1(4), 296–304.

¹⁴ Chalip, L. (2000) *Leveraging the Sydney Olympics for Tourism*. Barcelona: Centre d'Estudis Olímpics

¹⁵ Green, B.C. & Chalip, L. (2004) Paths to Volunteer Commitment: Lessons from the Sydney Olympic Games. In R. Stebbins & M. Graham (Eds.) *Volunteering as Leisure/Leisure as Volunteering: An International Assessment*. Wallingford: CAB International.

¹⁶ Toohey, K. (senior editor) (2002) *Official Report of the Games of the XXVII Olympiad*. Sydney: Sydney Organising Committee for the Olympic Games.

¹⁷ Toohey, K. & Veal, A.J. (2004) *The Olympic Games: A Social Science Perspective*. Wallingford: CAB International.

legacies (Toohey, 2002¹⁸), and their sport development and health impacts (Frawley & Toohey, 2005¹⁹; Veal & Toohey, 2005²⁰). Professor Toohey sits on the Editorial Boards of the *International Journal of Sport Management* and *Sport in Society*.

Professor Graham Brown is Professor of Tourism Management at the University of South Australia. He was lead author of much of the research evaluating the way in which the Sydney 2000 Olympic Games was leveraged for sponsorship (Brown, 2000²¹), national branding (Brown et al, 2002²²), tourism (Faulkner et al, 2000²³) and hospitality (Brown, 2007²⁴). Professor Brown sits on the Editorial Boards of the *International Journal of Culture, Tourism and Hospitality Research*, *Sport Management Review*, the *Journal of Sport & Tourism* and *Tourism Analysis*.

Professor Jules Pretty is Professor of Environment and Society at Essex University and is a leading expert on the topic of Green Exercise, particularly its mental and physical health benefits (Pretty et al,

¹⁸ Toohey, K. (2002) The social, economic, cultural, legacy and tourism impacts of the Sydney 2000 Games. Paper to the *International Conference for the Success of the 2002 World Cup*, Seoul, Korea.

¹⁹ Frawley, S. & Toohey, K. (2005) Shaping Sport Competition: The SOCOG Sports Commission and the Planning and Delivery of Sport at the Sydney 2000 Olympic Games. In N. Guoth, D.Adair & B.Coe (Eds.) *Beyond the Torch – Olympics and Australian Culture*. Sydney: ASSH.

²⁰ Veal, A.J. & Toohey, K. (2005) Sport for All and the Legacy of the Sydney Olympic Games> Paper to the *3rd International Event Management Research Conference*. Sydney, Australia.

²¹ Brown, G. (2000) Emerging Issues in Olympic Sponsorship: Implications for Host Cities. *Sport Management Review*, 3(1), 71–92.

²² Brown, G., Chalip, L. Jago, L. & Mules, T. (2002) The Sydney Olympics and Brand Australia. In N.Morgan, A.Pitchard & R.Pride (Eds.) *Destination Branding*. Oxford: Butterworth Heinemann.

²³ Faulkner, B., Chalip, L., Brown, G., Jago, L., March, R. & Woodside, A. (2000) Measuring the Tourism Impacts of the Sydney 2000 Olympics. *Event Management*, 6(4), 231–246.

²⁴ Brown, G. (2007) Sponsor Hospitality at the Olympic Games. *International Journal of Tourism Research*, 9(5), 315–327.

2005²⁵; Pretty, 2004²⁶), and has advised an Economic and Social Research Council working group on the interface between green exercise and the Olympic Games (Petty, 2008)²⁷. Professor Pretty is Chief Editor of the *International Journal of Agricultural Sustainability*, Deputy Chair of the government's Advisory Committee on Releases to the Environment, and a Fellow of the Institute of Biology and the Royal Society for Arts.

Dr Paul Downward is Director of the Institute of Sport & Leisure Policy at Loughborough University and has conducted a wide range of research on volunteer engagement (Burgham & Downward, 2005²⁸). In particular, he led a number of related projects that examined the impact of the Manchester 2002 Commonwealth Games on volunteering (Downward & Ralston, 2005²⁹; Downward & Ralston, 2006³⁰; Downward, Lumsden & Ralston, 2005³¹). Dr Downward is the author of *Essential Data Skills for Leisure: A Guide to Using Official Statistics* (Office for National Statistics, 2005) and sits on the Editorial Boards of the *Journal of Sport Economics* and the *Journal of Sport & Tourism*.

²⁵ Pretty, J., Peacock, J., Sellens, M. & Griffin, M. (2005) The mental and physical health outcomes of green exercise. *International Journal of Environmental Health Research*, 15(5), 319–337.

²⁶ Pretty, J. (2004) How nature contributes to mental and physical health. *Spirituality and Health International*, 5(2), 68–78.

²⁷ Pretty, J. (2008) The case for Green Exercise. Paper to the ESRC Round Table, *The Health Legacy from the 2012 Olympic Games*, Colchester, UK.

²⁸ Burgham, M. & Downward, P. (2005) Why Volunteer, time to volunteer? A case study from swimming. *Managing Leisure*, 10(2), 79–93.

²⁹ Downward, P. & Ralston, R. (2005) Volunteer motivation and expectations prior to the XVII Commonwealth Games in Manchester. *Tourism and Hospitality Planning and Development*, 2(1), 17–26.

³⁰ Downward, P. & Ralston, R. (2006) The Sports Development Potential of Sports Event Volunteering: Insights from the Manchester Commonwealth Games. *European Sport Management Quarterly*, 6(4), 333–351.

³¹ Downward, P., Lumsden, L. & Ralston, R. (2005) Gender Differences in Sport Event Volunteering: Insights from Crew 2002 at the XVII Commonwealth Games. *Managing Leisure*, 10(4), 219–236.

APPENDIX B
QUALITY APPRAISAL PRO FORMA

(Limited) Quality assessment of studies included in OHL review

Guidance

This assessment should be completed for each included study and then the assessments should be aggregated in results section and also discussion/conclusions for each section. Overall review summaries and any discussion of the limitations of the review should also include some summary of the aggregated information as well as transparent discussion of the limitations of this tool. Where studies give no or little information, tick 'unclear'. It is not usually good practice to make assumptions. If this is the case for significant numbers of studies then this will be a major limitation of the review.

Study No / Name / Authors

No:..... Title:..... Author(S):.....

Source:.....

Relevance assessment

Is the study UK based? Y/N/Where?

Is the field of study relevant to the OHL topic? Y/N/unclear

Name field ie: sports events/arts events/other (specify)

Are the aims of the study relevant to one of questions within the OHL topic? Y/N/unclear

Are the findings of the study relevant to one of questions within the OHL topic? Y/N/unclear

Quality appraisal

Is the study reporting a process of structured enquiry? Y/N/unclear

If yes, is it transparent and replicable? Y/N/unclear

Is the study design appropriate to answering the question? Y/N/unclear

If not structured enquiry tick which applies:

Discussion/opinion piece []

Policy briefing/debate []

Non-systematic secondary review/analysis []

Other [] Please specify

Ethical issues

Does the study report whether informed consent to participate was obtained from participants?
Y/N/unclear

Does the study report whether representatives of the target population were involved in the design and steering of the study? Y/N/unclear

Please describe any other ethical problems with the design or conduct of the study.

.....
.....
.....