

1 **ABSTRACT**

2 **Background:** It is argued that regular engagement in physical activity (PA) has the potential
3 to mitigate the negative health and educational outcomes that disadvantaged children living in
4 care frequently face. However, little is currently known about children in care's participation
5 in PA. This scoping review primarily aimed to identify barriers and facilitators to PA
6 participation for children in care. **Methods:** The main phases of the scoping review were: (1)
7 identifying relevant studies; (2) selecting studies based on pre-defined inclusion criteria; (3)
8 charting the data; and (4) collating, summarising and reporting the results. All relevant studies
9 were included in the review regardless of methodological quality and design. **Results:** The
10 seven articles that met the inclusion criteria were published between 1998 and 2013 and
11 conducted in the USA (3), England (2) and Norway (2). A social ecological model was
12 incorporated to map results against levels of influence. **Conclusions:** Various factors influence
13 PA engagement for children in care. Barriers include low self-efficacy, instability of their social
14 environment, which impacts on schooling and maintaining friendship groups and, specific
15 institutional practices and policies that may prevent access to PA. Before fully considering
16 policy implications, further research with children in care is warranted in this area.

1 **INTRODUCTION**

2 Very little is currently known about children in care's participation in physical activity (PA),
3 or the barriers and facilitators to their engagement. Understanding of PA access and the value
4 children in care place on PA is important since they are among the most vulnerable and
5 disadvantaged members of society.¹ Often exposed to violence, poverty and parental substance
6 abuse,^{2,3} children in care typically suffer poor physical and mental health, have difficulties with
7 their social and emotional wellbeing, and lack stable relationships resulting in problems with
8 attachment and lack of resilience.⁴ Those subjected to severe neglect, violence or abuse tend to
9 find interacting with wider networks and communities outside the care system particularly
10 difficult.^{2,3} It is thought that taking part in regular, structured PA offers children in care an
11 opportunity to reintegrate into mainstream society and develop new social networks beyond
12 the care system.⁵

13
14 In England and the United States of America (USA), the number of children in care is
15 increasing, with the majority cared for in a foster placement, while some are placed in
16 residential children's homes (RCH).^{6,7} A significant gap exists between the quality of lives for
17 children in care compared to their peers not in care. In fact, many children in care do not achieve
18 the same standards in education as those in the general community, with 68% of children in
19 care in England having a Special Educational Need (SEN).⁸ These figures pose significant
20 detriment on the future life and career prospects for these young people. However, Public
21 Health England⁹ have highlighted that a positive relationship exists between levels of PA
22 engagement and academic attainment. Research suggests that aerobically fit children achieve
23 greater academic success¹⁰ and have better brain function and memory task performance than
24 less fit children.¹¹ PA therefore can be seen to offer potential to begin to reduce the disparity
25 in educational attainment between those in care and their peers. It is also believed that

1 engagement in regularly scheduled, extracurricular PA provides a sense of structure to the lives
2 of children in care that is otherwise missing due to substantial, continual changes in care
3 placements.¹²

4
5 Beyond educational attainment, PA may offer further developmental potential for these
6 disadvantaged young people. For instance, with children in care experiencing a “higher
7 prevalence of both psychosocial adversity and psychiatric disorder than the most
8 socioeconomically disadvantaged children”,^{13(p323)} the link between PA and mental health is
9 especially important. Furthermore, engagement with competitive PA (e.g. sport) enables
10 children in care to develop resilience; “a capacity to do well despite adverse experience”.^{14(p37)}
11 Hence, regular engagement in PA could help foster ‘normal’ development, strengthen
12 assertiveness, build self-esteem and confidence, and help develop skills required to deal with
13 future life experiences.^{5,14}

14
15 PA may provide opportunities to enhance wellbeing and overall quality of life for those
16 children in care who experience poorer educational and health outcomes compared to their
17 peers. In a recent review of literature, it was identified that overweight and obesity prevalence
18 in children in care is greater than in the general population,¹⁵ increasing their risk of developing
19 serious health conditions in later life, such as diabetes and cardiovascular disease.¹⁶ Regular
20 PA participation could therefore help reduce the prevalence of overweight or obese young
21 people, and thus reduce future health complications for children in care.

22
23 Finally, as alluded to above, the label ‘in care’, is often associated with a range of negative
24 outcomes (albeit when compared to normative measures). This label may ultimately shape
25 children in care’s own expectations and aspirations. There is also a risk that those facing

1 adversity and labelled 'in care' may develop a stigmatised and, ultimately, all-embracing
2 'master' identity such as 'child in care'.¹⁷ However, engagement in PA may allow children in
3 care to generate a positive sense of identity, since participation in PA may enable them to
4 diversify their repertoire of socially valued roles, re-shaping their identity.¹⁷

5

6 Despite the asserted benefits of PA for children in care, evidence from the USA suggests that
7 when compared to young people living in two parent, lone parent and step family households,
8 those in foster care and RCHs were less likely to achieve the recommended levels of PA.¹⁸ One
9 reading of this is that children in care appear to engage in less PA than those in some of the
10 more diverse family structures. Thus, there is a need to better understand why children in care
11 might be less likely to achieve recommended levels of PA since increasing PA may mitigate
12 the negative health and educational outcomes discussed earlier. Ultimately, since there is a lack
13 of knowledge around how active children in care are or how they engage with PA, it is first
14 important to determine what the existing literature details in order to be able to focus future
15 research directions and help shape policy. Due to the broad, multidisciplinary nature of PA
16 research in general populations, coupled with a lack of children in care specific research in PA,
17 the primary aim of this paper was therefore to conduct a scoping review of the international
18 literature to gain insight into the barriers and facilitators to PA engagement for children in care.
19 To date, no study has attempted this.

20

21 As a result of the overarching aim of this study and the limited research in PA that engages
22 with children in care, two subsequent sub-aims included:

- 23 1. Exploring how research literature have used different methodological approaches for
24 engaging with children in care in relation to PA and;

1 2. Identifying future research directions and the policy implications based on the review
2 outcomes.

3

4 Given these specific aims, a scoping review was an appropriate method of investigation in this
5 instance. Using this approach allowed for an open and general search of all areas that the topic
6 area infringed upon to ensure important topical evidence was not unintentionally excluded.¹⁹

7

8 **METHODS**

9 Scoping reviews follow many similar methodological steps as systematic reviews,^{19,20} though
10 typically they involve the mapping of a range of evidence to convey the breadth and depth of
11 a field.²¹ However, a key difference is that authors do not typically assess the quality of
12 included studies in scoping reviews and the resulting synthesis is usually more qualitative.²⁰

13 Scoping reviews are also driven by a much broader research question. Hence, this review
14 sought to explore: *What barriers and facilitators affect PA participation for children in care?*

15 In line with current frameworks for conducting a scoping review,²¹ after identifying the
16 research question the next phases of this study included: (1) identifying relevant studies, (2)
17 study selection, (3) charting the data and, (4) collating, summarizing and reporting the results.

18

19 ***Identifying relevant studies***

20 A comprehensive search was performed using six academic journal databases (Sports Discus,
21 Physical Education Index: ProQuest, Social Care Online, PsycINFO, MEDLINE, ERIC). This
22 gave access to a range of health, sport and education journals. These databases were searched
23 for articles published between 1989 (when the term children in care was first muted in the 1989
24 Children Act in England) and 2014. The term ‘physical activity’ is used here to encapsulate
25 sport, curriculum PE, schools’ extra-curricular provision and physical activities undertaken

1 away from school. A list of keywords and alternative keywords were created, combined using
2 Boolean operators ('AND', 'OR', 'NOT'), and included in the aforementioned search
3 databases. The search strings included:

4 (1) 'Physical activity' OR sport OR exercise OR 'physical education' OR leisure OR
5 recreation AND

6 (2) 'Children in care' OR 'looked-after children' OR 'foster care' OR 'residential care'

7 An asterisk (*) was used to indicate that the key words were explored in singular, plural and
8 other related forms. In addition, several specialist journals (*British Journal of Social Work*;
9 *Child and Family Social Work*; *Journal of Social Work Practice*) were searched to allow for
10 the most comprehensive examination of existing literature. The search also explored additional
11 'grey literature' such as reports and PhD theses that were identified through databases to reduce
12 the risk of publication bias,²² though non met the inclusion criteria to be included here.

13

14 ***Study selection***

15 Following the initial search, titles and abstracts were screened against the following inclusion
16 criteria: (1) published in English language; (2) published, peer-reviewed journals or peer-
17 reviewed reports; (3) published between 1989 and 30th April 2014 (end date of the search); (4)
18 relate to children and young people living in or leaving care (in foster homes or residential
19 centres); and (5) broadly explore participation in PA. Both authors met at the beginning, mid-
20 point and final stages of the abstract review process to discuss any uncertainties about study
21 selection.²¹ This ensured all abstracts selected were relevant for full article review. Searches
22 conducted on the databases returned 576 papers. Following the first stage of screening (titles
23 and abstracts only), some papers were excluded because they were not published in English
24 ($n=4$) and were outside the search date parameters ($n=15$). However, the majority were
25 excluded because of relevance to this study; for instance, they didn't relate to children and

1 young people living in or leaving care ($n=189$) and didn't explore participation in PA ($n=362$).
2 As such, six individual papers were left. After this, all relevant references from the final six
3 papers were followed up and included where they too met the inclusion criteria. This resulted
4 in a further study being included, resulting in a final total of seven studies. Both reviewers then
5 independently reviewed the full articles for inclusion in the study.²¹

6

7 *Charting the data*

8 The final selection of articles subjected to full review were collated and presented in Table I.
9 Using a standard coding template to chart the data, the aim, study design, sample characteristics
10 and key findings of each article were recorded (Table I). As with the previous stage, each author
11 independently extracted data from each article and entered them into an Excel database before
12 reviewing and finalising the recorded data.²¹

13

14 **INSERT TABLE I**

15

16 *Collating, summarising and reporting the results*

17 The final sources were thematically analysed to construct a scoping review narrative.²¹ This
18 allowed for an interpretation of the literature against the primary research question and study
19 aims. Given the complex nature of the lives of children in care, a guiding framework for
20 understanding multidimensional PA influences was needed to support the scoping review. One
21 such approach was the use of the social ecological model. As well as exploring intrapersonal
22 (individual) and interpersonal factors, social ecological models consider broader influential
23 factors such as the community, institutions, and policy on positive health behaviours.^{23,24} Since
24 the intent was to summarize key findings presented across the articles, an adaptation of the

1 social ecological model by McLeroy et al.²⁵ was employed as a guiding framework to cast light
2 onto the aspects that shape children in care's engagement in PA.

3

4 **Results**

5 The final seven articles selected for review were published between 1998 and 2013 and
6 conducted in the USA (3), England (2) and Norway (2). These studies are reported below in
7 relation to the different factors that influence PA engagement for children in care. As identified
8 in the social ecological model results are reported under individual, interpersonal, institutional,
9 community and public policy levels of influence.

10

11 *Individual factors*

12 Individual or intrapersonal factors that may influence PA of children in care relate to individual
13 characteristics and choices.²⁵ This includes PA knowledge, skills, self-efficacy and individual
14 socioeconomic circumstance. In a Norwegian study exploring adolescents' use of free time, it
15 was suggested that children living in residential homes, reported lower scores in perception of
16 PA ability/success, which may impact on their uptake of PA due to lack of belief in their own
17 abilities.²⁶ This study used a self-report questionnaire that captured salient aspects of the
18 immediate contexts to compare the experiences of 20 adolescents (mean age 16.7) living in
19 youth protection institutions with their non-institutionalized peers (mean age 16.2).²⁶ It was
20 subsequently found that they spent the majority of their free time in passive–receptive activities
21 (e.g. watching television, daydreaming or doing nothing) that do not provide the rewards of
22 improvement or confidence associated with self-involving activities such as physical
23 activities.²⁶ This is perhaps not surprising since vulnerable groups of children often suffer from
24 feelings of helplessness, low self-esteem and perception of inability.²⁷

25

1 In addition, finance was reported to impact on children in care's ability to engage in PA. Using
2 semi-structured interviews, an English study of 32 care leavers aged between 18 and 32 found
3 that a lack of money was a major barrier to involvement in leisure and social activities, with
4 the most frequent activity being sport.²⁸ This study provides an insight into potential reasons
5 for drop out of structured PA post-care. While finance could be an issue for those leaving care,
6 an American study of children living in residential care reported few differences in PA
7 participation with regard finance, regardless of race/ethnicity.²⁹ It is important to note however
8 that Dowda and colleagues²⁹ measured PA using a subjective self-recall questionnaire. This
9 has the potential for socially desirable responses and since young people are less time conscious
10 than adults, tending to engage in activity at sporadic times,³⁰ accurately recalling activity is
11 problematic.

12

13 *Interpersonal factors*

14 Very little is known about how various interpersonal processes and primary social groups
15 (peers, social workers, family and foster carers) that provide identity markers, support and role
16 modelling, influence activity choices or participation for children in care. As Safvenbom and
17 Samdahl's³¹ follow up study reported, the presence of friends had a positive influence on the
18 desire of children in care to engage in a particular activity (e.g. sport) more often. However,
19 their earlier study indicates participants wanted to engage in more self-involving activities in a
20 particular context, such as through informal play in parks or recreation areas, with social
21 workers.²⁶ They suggest that these types of activities rarely happened because the social worker
22 lacked competence in these activities or did not value them.²⁶ This in turn may be linked to the
23 social worker/support team's level of self-efficacy, skills, or knowledge of activities children
24 in care want to engage in, which filters down to the children themselves.

25

1 It is difficult for social workers and foster carers to provide appropriate support or role
2 modelling for children in care when the type of activities they enjoy are not known. In a USA
3 survey of 103 foster-carers, 43% of respondents were unaware of the activities (including, but
4 not exclusively, PA) in which the children in their care were involved in prior to their current
5 placement.³² If policy were to address this issue, it is possible that children in care's PA
6 engagement could increase, alleviating the issues of low self-efficacy, instability and improve
7 resilience. Improved peer and adult relationships with those involved with, and supporting the
8 child in the activity could lead to positive role models as well as nurture a positive support
9 network.

10

11 *Institutional factors*

12 Only two studies, both from the USA, reported on institutional factors. These include the rules,
13 regulations, practices, policies and structures of institutions (care homes, schools,
14 neighbourhood etc.) that constrain or promote certain behaviours such as PA.²⁵ Such factors
15 also include the physical and social environment of the foster home/care home.

16

17 One of the studies reported on activity of 263 children living in RCHs revealing that specific
18 practices occurring within the homes were preventing access to PA.²⁹ For instance, the
19 organisation and timing of other activities (scheduled counselling, meetings, therapy or
20 doctor's appointments) occurred during times when children would normally be free to engage
21 in PA.²⁹ As such, this may prove to be a key factor that hinders engagement in PA yet may be
22 unique to children living in RCH as opposed to those in foster care.

23

24 Dowda and colleagues²⁹ also suggest that the proximity of the children's home to facilities, and
25 access to equipment for PA engagement, plays an influential role in the activity levels of

1 children in care. This point is reiterated in a follow up study that explored determinants to
2 activity for children living in residential homes. The study proposes that the rural or urban
3 location of children's homes could be a confounding variable for access to relevant facilities
4 for PA participation.³³

5

6 Drawing on 19 residential homes with 196 children in North and South Carolina, the second
7 study from the USA found that the presence of a recreational director was a significant
8 predictor of PA in children in care.³³ Homes with a recreation director (a paid member of staff
9 responsible for ensuring safe PA opportunities) reported higher amounts of activities provided
10 by a skilled adult, and greater access to off-site opportunities and places to be active.³³
11 However, the authors suggested that employing a recreational director may be perceived as a
12 substitute for RCH resources.³³ They also argued that having a trained, skilled person directing
13 PA could prove to be more important for children living in a residential home than enhancing
14 only the built environment.³³

15

16 *Community factors*

17 McLeroy et al.²⁵ defined community factors as the relationships between institutions that
18 influence health behaviour coupled with the various social networks, norms and standards of a
19 specified area/locality. For children in care this may include the relationship between their carer
20 (the care home) and a teacher (the school). In England for instance, all children in care must
21 have a care plan which is drawn up and reviewed by the local authority that looks after them.
22 This identifies intended outcomes and objectives for the child and includes a health plan and
23 Personal Education Plan (PEP). Due to the complexity of their lives, the PEP is intended to be
24 a living document that moves with children throughout their education. It provides a record of

1 their academic achievement and participation in the wider activities of the school and other
2 out-of-school learning activities (e.g. sporting activities).

3

4 PA including sport can be raised in PEPs. However, a recent study across 128 local authority
5 councils in England reported that limited guidance was provided to social workers to consider
6 PA within PEPs.³⁴ The inclusion of PA within PEPs in England would arguably help coordinate
7 professionals working with children in care (e.g. social workers, designated teachers and
8 educational liaison officers) toward ensuring they access health promotion schemes and out-
9 of-school activities to enhance their well-being.³⁴ At present, this does not appear to be the
10 case.

11

12 *Public Policy*

13 The final level of the social ecological model centres on public policy: national or local policies
14 that help support or hinder health behaviours such as PA,²⁵ yet only two studies, both from
15 England, explored this level of influence.^{28,34} In England, arguably one of the most significant
16 factors impacting on children in care's engagement in PA is the constraints of the care system,
17 particularly placement moves.^{28,34} For instance, children in care have reported that maintaining
18 leisure activities, including PA, was particularly problematic due to frequent placement moves
19 whereby they ended up living long distances away from friends and places they usually
20 engaged in activity.²⁸ It is therefore important that policy addresses this and considers these
21 factors when placing children in different homes.

22

23 A recent study exploring national and local policy influences on sport for children in care found
24 that, despite an expectation that local authorities in England would offer free sport and leisure
25 provision for children in care, 48% of councils did not provide this.³⁴ Drawing from Freedom

1 of Information requests to 152 Directors of Children’s Services, this study found that only 41%
2 of councils provided free access though this was usually restricted to certain activities (i.e.
3 swimming) and often at restricted times³⁴ making regular engagement in PA difficult. In
4 addition, to compensate for those children who lived further away from the subsidised (often)
5 city-based leisure centres, only a few councils provided free bus passes, noting that transport
6 for these children was a major barrier to participation.³⁴ Murray’s³⁴ study reported that councils
7 tended to rely on the provision of PA for children in care within a school context. This is partly
8 a facet of the funding structures in place in England but also relies on an assumption that
9 schooling is universally accessed, which for many, it is not.

10

11 **Discussion**

12 To our knowledge this is the first review to explore the PA influences of children in care and
13 reveals they may struggle to access PA equal to their non-looked after peers, though clearly
14 further research is required here. Despite using a social ecological model to review the
15 literature, it is important to consider that only seven papers were found that contributed to this
16 knowledge base. Although several of the barriers to PA experienced by children in care may
17 be similar to those experienced by the most vulnerable families in society (including finance
18 and transport opportunities),³⁵ they also face further challenges unique to their social situation.

19

20 One of the primary factors reported here is that children in care may have a low perception of
21 their own ability (self-efficacy). Self-efficacy is considered a central influence on healthy
22 behaviours,³⁶ particularly with regard to children in care’s perceived ability to execute specific
23 skills required for some physical activities. Thus at an intrapersonal level, low self-efficacy
24 may inhibit engagement in PA. This could be addressed through introducing, encouraging and
25 modelling more self-involving activities in children’s lives.²⁶ However, little is known about

1 whom the key social agents are that could influence children in care's engagement with PA
2 through modelling or providing support and encouragement, though friends, social workers
3 and foster carers may play a particularly important role.^{26,31,32} In England the influence of
4 friends is particularly problematic since placement moves make it extremely difficult to
5 maintain friendships over prolonged periods of time²⁸ and yet, ironically, continued access to
6 PA may enable children in care to develop friendships beyond their immediate
7 environment.^{5,14,28} Moreover, some social workers and carers may lack the necessary
8 competence,²⁶ and knowledge of previous experiences,^{31,33} to be able to successfully support
9 them. It would appear that in England, there is a need to ensure social workers and carers are
10 given guidance and advice about the role of PA for these young people.

11

12 The literature would also suggest that specific care home policies may restrict access for
13 children in care. For instance in the USA, the scheduling of appointments has been found to
14 occupy time that could be used for PA,²⁹ while the location and built environment of residential
15 homes may not be conducive to PA.^{29,33} These latter findings are consistent with previous
16 research that highlights the proximity to places to be active and availability of sports equipment
17 as factors that influence PA participation.³⁷ Despite the different geographical location of the
18 studies, these factors may well translate to a UK context where RCH may operate in similar
19 ways, are located in areas of high deprivation and have limited space for activity. A particularly
20 important finding, however, is that some homes in the USA appoint a recreation director to
21 organise activities for children in care.³³ Thus, the most important policy for the unique setting
22 of a RCH may be to appoint (where possible) a recreation director to help facilitate PA.

23

24 More broadly, constraints of the care system ultimately impact on engagement with PA. In
25 England, it has been reported that inconsistent provisions of free sport and leisure access and

1 sporadic provision of a free bus service to access activities hinders children in care's
2 engagement in PA. However, placement moves unquestionably have the biggest impact. For
3 instance, one study reported that a girl entered care at 16 and had 17 different care placements
4 by the time she left care aged 21.²⁸ School attendance for children in care is therefore
5 problematic since many experience frequent changes in care placements. Children in care are
6 also more likely to be permanently excluded.³⁸ As such, they often miss out on school based
7 sport activities (and are more dependent on out-of-school activities than other children), which
8 is particularly problematic if councils in England are relying on schools to provide access to
9 PA.

10

11 A particular strength of this study was the use of the social ecological model that allowed the
12 authors to explore the multiple influences on PA at different levels. In keeping with the
13 interrelated nature of the social ecological model, it would appear that local and national
14 policies have a major impact on various factors that influence children in care's engagement in
15 PA. However, before considering these policy implications, it is worth reiterating that these
16 findings are based on only seven studies from three very different countries where child welfare
17 approaches and systems differ. For instance, unlike England and Norway, the USA has a
18 relatively decentralised welfare system with federal law shaping minimum standards, with each
19 state having relative autonomy in how they operate.³⁹ These differences within and across
20 countries may ultimately shape PA factors differently. In addition, this search was limited in
21 terms of what the databases returned and how accessible they were, and therefore could have
22 excluded smaller case study work that would have informed this study.

23

24 That said, it was reported that children in care suffer from low self-efficacy which inhibits their
25 ability to participate in physical activities, a finding that may transcend geographical location.

1 Stable friendship groups appear important facilitators in improving self-efficacy although with
2 frequent placement moves these relationships prove difficult for children in care to maintain.
3 Continuous engagement with PA provides a channel to foster stable friendship groups and thus
4 improve self-efficacy through role modelling and peer support. Yet the frequent placement
5 moves impact on the continuity of activities and mean it is extremely difficult for children in
6 care to attend regular, structured physical activities to develop such relationships. It is therefore
7 imperative that future research and policy address these issues if children in care are to lead a
8 fulfilling childhood comparable to those not in care.

9

10 ***Methodological considerations***

11 As evidenced by the scarce number of studies (specifically concerning PA) that directly engage
12 with young people ($n=4$), research with children in care can be quite complex, especially with
13 regard to gaining access and seeking consent.⁴⁰ This is in part due to the large number of
14 gatekeepers involved (social workers, service managers, birth parents, carers etc.) and part due
15 to the ethical considerations that are integral to working with vulnerable young people. Gaining
16 access and recruitment is therefore a slow and time consuming process and must be built into
17 future study timeframes. Gatekeeper's perceptions of children in care's vulnerability may also
18 mean that children are denied the opportunity to participate without them ever even knowing
19 about the research.⁴¹ While their duty to protect the best interest of the child is probably at the
20 heart of gatekeeper's decisions to include or exclude children from research, these decisions
21 raise questions about children's rights and ability to make their own decisions.

22

23 Moreover, listening to the voices of children in care is not unproblematic. Perhaps in an effort
24 to mitigate difficulties with access and ethical considerations associated with talking directly
25 to this vulnerable group, that those studies that directly engaged with children in care reported

1 here, all used quantitative, self-report measures. However, this approach has particular
2 limitations with regard to children's memory and their cognitive abilities to accurately recall
3 events from the past. Only one study directly engaged with care leavers and did this through
4 qualitative interviews. It would therefore seem reasonable to assume that with fewer
5 restrictions on gatekeepers and less ethical implications (given that most care leavers are
6 classed as adults), then engaging with this group could be explored further. Despite this, most
7 studies included in this review engaged with key stakeholders instead of the young people
8 themselves.

9

10 For future studies in this area it is important to remember that while gatekeepers are often
11 barriers to children and young people in care, they are also the gateway to their participation.

12 ⁴² As such, to help improve access, Murray⁴² suggests there is a need to invest considerable
13 time in building relationships with gatekeepers at various hierarchical levels and sustaining
14 contact with them throughout the study. Research from other fields also reveals that asking
15 carers (foster carers or residential staff) to be involved in the study alongside young people
16 may help increase the number that agree to their children's participation,⁴⁰ while others have
17 offered remuneration in the form of small gift vouchers to increase participation.⁴²

18

19 *Gaps in the literature*

20 While there is evidence to suggest that PA participation can have a positive effect on
21 educational attainment and the physical and psychological wellbeing of children, further
22 research is required specifically with children in care. To maximise any effect of engagement
23 in PA and to help them recover from any earlier disadvantaged, further priority should be given
24 to exploring whether children in care are as active as they could be, whilst attempting to
25 understand the factors that influence their PA engagement. There is little research on the types

1 of PA that children in care engage in and there is also a need to consider any differences in PA
2 that children in care engage in while living in foster care or in RCHs, as the two settings differ.
3 Information about the availability of equipment or places to go to be active for children living
4 in care homes in England or abroad is likewise required. Despite the different geographical
5 contexts of the studies reported here, it is apparent that most of the factors identified may well
6 translate to England and other countries where children live in care. However, there currently
7 lacks a national and international body of work that engages with children in care to explore
8 the meaning, value and relevance of PA to them. Finally, if future research begins to address
9 these gaps, it will better inform how access to PA can enhance the physical and mental well-
10 being, and thus the quality of life, for children in care.

1 **REFERENCES**

- 2 1. Sempik J, Ward H, Darker I. Emotional and behavioural difficulties of children and
3 young people at entry into care. *Clin Child Psychol Psychiatry*. 2008; 13: 221-233.
- 4 2. McAuley C, Davis T. Emotional well-being and mental health of looked after children
5 in England. *Child Fam Soc Work*. 2009; 14: 147-155.
- 6 3. Scott J. The impact of disrupted attachment on the emotional and interpersonal
7 development of looked after children. *Educ Child Psychol*. 2011; 28: 31-43.
- 8 4. Simkiss D. Chapter 11 – Looked-after children and young people. In: Department of
9 Health (Ed). *Annual report of the chief medical officer 2012 – Our children deserve
10 better: Prevention pays*. London: Department of Health; 2013.
- 11 5. Gilligan R. Enhancing the resilience of children and young people in public care by
12 mentoring their talents and interests. *Child Fam Soc Work*. 1999; 4: 187-196.
- 13 6. Department for Education. *Children looked after in England (including adoption and
14 care leavers) year ending 31 March 2014*. London: Department for Education; 2014
- 15 7. Child Welfare Information Gateway. *Foster care statistics 2012*. Washington, DC: U.S.
16 Department of Health and Human Services, Children’s Bureau; 2013
- 17 8. Department for Education. *Outcomes for children looked after by local authorities in
18 England, as at 31 March 2014*. London: Department for Education; 2014.
- 19 9. Public Health England. *Annual Report and Accounts*. London: Public Health England;
20 2014.
- 21 10. Buck S, Hillman C, Castelli D. The relation of aerobic fitness to Stroop task
22 performance in preadolescent children. *Med Sci Sports Exerc*. 2008; 40: 166-172
- 23 11. Chaddock L, Erickson R, Prakash R, et al. A neuroimaging investigation of the
24 association between aerobic fitness, hippocampal volume and memory performance in
25 preadolescent children. *Brain Res*. 2010; 1358: 172–183.

- 1 12. Farineau H, McWey L. The relationship between extracurricular activities and
2 delinquency of adolescents in foster care. *Child Youth Serv Rev.* 2011; 33: 963-968.
- 3 13. Ford T, Vostanis P, Howard M, et al. Psychiatric disorder among British children
4 looked after by local authorities: Comparison with children living in private
5 households. *Brit J Psychiat.* 2007; 190: 129–225.
- 6 14. Gilligan R. Adversity, resilience and young people: the protective value of positive
7 school and spare time experiences. *Child Soc.* 2000; 14: 37-47.
- 8 15. Skouteris H, McCabe M, Fuller-Tyszkiewicz M, et al. Obesity in children in out-of-
9 home care: A review of the literature. *Aust Social Work.* 2011; 64: 475-486.
- 10 16. Hadfield C, Preece P. Obesity in looked after children: is foster care protective from
11 the dangers of obesity? *Child Care Hlth Dev.* 2008; 34: 710-712.
- 12 17. Gilligan R. Promoting resilience in young people in long-term care - the relevance of
13 roles and relationships in the domains of recreation and work. *J Soc Work Pract.* 2008;
14 22: 37-50.
- 15 18. Ornelas I, Perreira K, Ayala G. Parental influence on adolescent physical activity: a
16 longitudinal study. *Int J Behav Nutr Phys Act.* 2007; 4: 1-10.
- 17 19. Weeks L, Strudsholm T. A scoping review of research on complementary and
18 alternative medicine (CAM) and the mass media: Looking back, moving forward, *BMC*
19 *Complement Altern Med.* 2008; 8: 43.
- 20 20. Rumrill P. Using scoping literature reviews as a means of understanding and
21 interpreting existing literature. *Work.* 2010; 35: 399-404.
- 22 21. Levac D, Colquhoun H, O'Brien K. Scoping studies: advancing the methodology.
23 *Implement Sci.* 2010; 5: 1-9.
- 24 22. Pearce G, Thøgersen-Ntoumani C, Duda J. Body image during the menopausal
25 transition: a systematic scoping review. *Health Psychol Rev.* 2014; 8: 473-489.

- 1 23. Sallis J, Owen N, Fisher E. Ecological models of health behaviour. In: Glanz K, Rimer
2 B, Viswanath K (eds). *Health behaviour and health education: theory research and*
3 *practice*. San Francisco: Jossey-Bass. 2008, 465-485.
- 4 24. Stokols D. Translating social ecological theory into guidelines for community health
5 promotion. *Am J Health Promot*. 1996; 10: 282–298.
- 6 25. McLeroy K, Bibeau R, Steckler D et al. An ecological perspective on health promotion
7 programs. *Health Educ Quart*. 1988; 15: 351-377
- 8 26. Safvenbom R, Samdahl D. Involvement in and perception of the free-time context for
9 adolescents in youth protection institutions. *Leisure Stud*. 1998; 17: 207-226.
- 10 27. Haudenhuyse R, Theeboom M, Coalter F. The potential of sports-based social
11 interventions for vulnerable youth: implications for sport coaches and youth workers. *J*
12 *Youth Stud*. 2012; 15: 437-454.
- 13 28. Hollingworth K. Participation in social, leisure and informal learning activities among
14 care leavers in England: positive outcomes for educational participation. *Child Fam*
15 *Soc Work*. 2012; 17: 438-447.
- 16 29. Dowda M, Saunders R, Hastings L, et al. Physical activity and sedentary pursuits of
17 children living in residential children's homes. *J Phys Act Health*. 2009; 6: 195-202.
- 18 30. Armstrong N, Welsman J. The physical activity patterns of European youth with
19 reference to methods of assessment. *Sport Med*. 2006; 36: 1067-1086.
- 20 31. Safvenbom R, Samdahl D. Leisure for youth in residential care: an important context
21 for intervention. *Int J Soc Welf*. 2000; 9: 120-127.
- 22 32. Fong R, Schwab J, Armour M. Continuity of activities and child well-being for foster
23 care youth. *Child Youth Serv Rev*. 2006; 28: 1359-1374.
- 24 33. Gay J, Dowda M, Saunders R, et al. Environmental determinants of children's physical
25 activity in residential children's homes. *J Phys Act Health*. 2011; 8: 636-644.

- 1 34. Murray C. Sport in care: Using freedom of information requests to elicit data about
2 looked after children's involvement in physical activity. *Brit J Soc Work*. 2013; 43:
3 1347-1363.
- 4 35. Armour K, Sandford R, Duncombe R Right to be active: looked-after children in
5 physical education and sport. In: Armour K (ed). *Sport Pedagogy: An introduction for*
6 *teaching and coaching*. London: Prentice-Hall, 2011, 214-225.
- 7 36. Bandura A. *Social foundations of thought and action: A social cognitive theory*.
8 Englewood Cliffs, NJ: Prentice-Hall; 1986
- 9 37. Loucaides C, Chedzoy S, Bennett N. Differences in physical activity between urban
10 and rural school children in Cyprus. *Health Educ Res*. 2004; 19: 138–147.
- 11 38. Harker R. *Children in care in England: Statistics, Standard Note SN/SG/4470*, London:
12 House of Commons Library; 2011
- 13 39. Munro R, Manful E. *Safeguarding children: a comparison of England's data with that*
14 *of Australia, Norway and the United States, Research Report DFE-RR198*, London:
15 Department for Education; 2010
- 16 40. Hepinstall E. Gaining access to looked after children for research purposes: lessons
17 learned. *Brit J Soc Work*. 2000; 30: 867–72.
- 18 41. Berrick J, Frasch K, Fox A. Assessing children's experiences of out of home care:
19 Methodological challenges and opportunities. *Soc Work Res*. 2000; 24: 119–27.
- 20 42. Murray C. Children and young people's participation and non-participation in research.
21 *Adopt Foster*. 2005; 29: 57-66
- 22

Table I. Background, methodological details and key findings of included studies

Author(s), date & location	Research aim	Study design	Sample characteristics	Key findings
Safvenbom & Samdahl (1998) ²⁶ ; Norway	(1) To map the patterns of activity, social context and arena during the free time of adolescents at youth protection institutions and; (2) to compare those patterns to a group of non-institutionalized adolescents	Quantitative study that used an Experience Sampling Method (ESM) questionnaire. Participants wore a pager that alerted them at certain times to fill out the questionnaire about the immediate context they were in.	Participants included those from 8 youth protection institutions (residential children's homes) ($n=20$, mean age 16.7, 65% male) and those who were not in care (to act as the comparison group) ($n=27$, mean age 16.2, 63% male). Participants were recruited through mail shots.	Youth in care reported significantly fewer activities categorized as self-involving (e.g. physical activities) and more activities categorized as passive receptive. Looked-after children spent most of their free time in solitude and seemed to withdraw from public settings. Findings suggest the introduction of activities that are self-involving as a way to enhance self-esteem.
Hollingworth (2012) ²⁸ ; England, UK	(1) to explore the impact that social, leisure and informal learning activities have on the learning identities and educational participation of young people in and leaving care and; (2) to highlight the contribution that leisure activities can make to improving the educational outcomes	Qualitative study whereby five local authorities were used as case study sites. The study included semi-structured interviews that drew on a bio-graphical narrative interview method.	Care leavers aged 18-24 ($n=32$) who were in care at age 16 were interviewed. Some participants ($n=27$) were interviewed a second time a year later. Interviews with carers and professionals that looked-after children identified as being particularly supportive were also conducted ($n=14$).	The majority of those interviewed were engaged in a wide range of social and leisure activities with the most cited being sport. 41% engaged in some kind of sporting activity. Participating in sport was important in developing friendships and widening the social network with those not in care. Sport had provided an important source of stability and consistency in their lives.
Dowda et al. (2009) ²⁹ ; USA	(1) to describe the types of physical activities and sedentary pursuits reported by children living in residential children's homes and make comparisons by age, gender, and race/ethnic groups.	Quantitative study of physical activities and sedentary pursuits that were reported over a 3-day period using the 3-Day Physical Activity Recall (3DPAR).	Participants included 263 children (52% male, 40% 11 to 14 years old, 60% 15-18 years old, 53% White, 23% African American, and 24% other race/ethnic groups) from 23 residential children's homes in North and South Carolina. The median length of stay in the homes was 6 months.	Children in residential homes participate in activities that are similar to children living with their parents. However, children in residential homes may participate in some physical activities for shorter periods of time than children living with their parents. Practices within the homes (e.g. scheduled appointments) were preventing access to physical activities.

Author(s), date & location	Research aim	Study design	Sample characteristics	Key findings
Safvenbom & Samdahl (2000) ³¹ ; Norway	(1) To examine the effect of the type of activity, social context and location on their experience of free time for looked-after children compared to their peers.	Quantitative study that used an ESM questionnaire. Participants wore a pager that altered them at certain times to fill out the questionnaire about the immediate context they were in.	Data were collected from a sample of looked-after children ($n=20$, mean age 16.7, 65% male) and a comparison group of non-institutionalized adolescents ($n=27$, mean age 16.2, 63% male) from neighbouring schools.	Adolescents in the youth protection group were significantly more likely to say they wanted more self-involving activities and found this type of engagement within the privacy of their institution rather than in public arenas. They reported insufficient opportunity to engage in self-involving activities.
Fong et al. (2006) ³² ; USA	(1) to explore the relationship between continuity of activities and child well-being of those in foster care	Quantitative study that surveyed foster care parents about the child's school, leisure, family, social, and therapeutic activities prior to and during their stay with the foster care family.	Participants included 103 foster care parents ($n=63$ were kin-fosterparents; $n=39$ were non-kin foster parents). Demographic information was not available for the foster parents.	The majority of foster care parents did not know about the child activities prior to placement in their home. Continuation of certain activities (e.g. physical activities) is beneficial in instilling stability and improving measures of well-being.
Gay et al. (2011) ³³ ; USA	(1) to investigate the influence of location, organizational structures for physical activity and the home environment on physical activity in the population of looked-after children and; (2) examine differences in children's moderate and vigorous physical activity.	Quantitative study that measured thirty-minute blocks of MVPA and Total METs using the 3-Day Physical Activity Recall (3DPAR).	Participants included 196 looked-after children (mean age 14.7, 48% white, 31% Black and, 21% Other [Hispanic, mixed race, other or unknown]) living in 19 residential homes in North and South Carolina.	Children in homes with a recreation director and homes in rural locations reported more physical activity. Only rural location had a significant effect on physical activity.
Murray (2012) ³⁴ ; England, UK	(1) to explore looked-after children's (currently in the care system) involvement in physical activities including sports	Qualitative study using freedom of information requests to gather data from councils in England.	128 out of 152 (84%) directors listed on the Association of Directors of Children's Services website responded to freedom of information requests	62 councils (48%) did not provide free access to sports and leisure centres for looked-after children. Most councils (78%) did not collate aggregate data on looked-after children's involvement in physical activity. There was differential provision for out-of-school activities for children who are looked after according to where they live.