

Green, K. S. (2014). Mission impossible? Reflecting upon the relationship between physical education, youthsport and lifelong participation. *Sport, Education and Society*, 19, 357-375.

---

Dette er siste tekst-versjon av artikkelen, og den kan inneholde små forskjeller fra forlagets pdf-versjon. Forlagets pdf-versjon finner du på [www.tandfonline.com](http://www.tandfonline.com): <http://dx.doi.org/10.1080/13573322.2012.683781>

---

This is the final text version of the article, and it may contain minor differences from the journal's pdf version. The original publication is available at [www.tandfonline.com](http://www.tandfonline.com): <http://dx.doi.org/10.1080/13573322.2012.683781>

---

**MISSION IMPOSSIBLE? REFLECTING UPON THE RELATIONSHIP BETWEEN  
PHYSICAL EDUCATION, YOUTH SPORT AND LIFELONG PARTICIPATION**

Ken Green

*University of Chester, UK and Norwegian School of Sport Sciences, Norway*

---

Correspondence to:

Ken Green, Department of Sport & Exercise Sciences, University of Chester, Parkgate Road,  
Chester, CH1 4BJ. Email: [kengreen@chester.ac.uk](mailto:kengreen@chester.ac.uk)

## **ABSTRACT**

It is widely believed that school physical education (PE) is or, at the very least, can (even should) be a crucial vehicle for enhancing young people's engagement with physically active recreation (typically but not exclusively in the form of sport) in their leisure and, in the longer run, over the life-course. Despite the prevalence of such beliefs there remains a dearth of evidence demonstrating a 'PE effect'. Indeed, the precise nature of the relationship between PE, youth sport and lifelong participation is seldom explored other than in implicit, often speculative and discursive, ways that simply take-for-granted the positive effects of the former (PE) on the latter (youth and adult participation in sport and physically active recreation). Using largely European studies to frame the issue, this paper reflects upon the supposedly 'causal' relationship between PE, youth sport and lifelong participation and, in doing so, highlights the inherent problems associated with attempts to identify, characterise and establish a 'PE effect'. In the process, the paper points to a need for more longitudinal and biographical research exploring sports careers and the sporting habituses of young people, not least in order to better understand in precisely what circumstances PE interventions might work to enhance youth involvement in sport and physical activity and, subsequently, lifelong participation.

## **KEY WORDS**

physical education, youth sport, lifelong participation, causation, correlation

## **MISSION IMPOSSIBLE? REFLECTING UPON THE RELATIONSHIP BETWEEN PHYSICAL EDUCATION, YOUTH<sup>1</sup> SPORT AND LIFELONG PARTICIPATION**

## **INTRODUCTION**

It is widely believed that participation in sport and physically active recreation during youth can be a significant factor in lifelong engagement therein (Scheerder *et al.*, 2006; Laakso, Telama, Nupponen, Rimpela & Pere, 2008). School physical education (PE) is, in turn, often portrayed as a potentially significant, some would say crucial, intermediary or vehicle for enhancing young people's engagement with physically active recreation (typically but not exclusively in the form of sport) in their leisure and, in the longer run, over the life-course. Indeed, the well-worn claim that Trudeau and Shephard (2008: 266) make for PE in relation to physical activity can be generalised to sport and physical recreation more broadly: 'The most commonly anticipated effect of being exposed to PE at a young age is socialization into PA [physical activity], with a consequent increase in PA as an adult'. In a similar vein, Evans and Davies (2010: 768) point up the various assumptions that underpin the alleged capacity for PE 'to affect the dispositional resources (motivation/attitudes/willingness/desire – fundamental cultural capitals) of pupils for performance or participation in sport in and out of school'. This taken-for-granted assumption – regarding the ostensible impact of PE on participation – finds expression not only among PE teachers (see Green, 2000, 2003) and PE and sport science academics (Dixon, Warner & Bruenig, 2008; Corbin, 2002; Fairclough, Stratton & Baldwin, 2002; Flintoff, Long & Hylton, 2005; Haerens, Kirk, Cardon, de Bourdeaudhuij & Vansteenkiste, 2010; Harris, 2005; MacNamara *et al.*, 2011; Shephard & Trudeau, 2000; Trudeau & Shephard, 2005; Xu, Chepyator-Thomson, Liu and Schmidlein, 2010) but also in government policy internationally (Hardman, 2005). Indeed, growing

concern with young people's health over the last 30 or so years has resulted in a plethora of initiatives (Coalter, 1999) and pleas (see, for example, McKenzie, 2009) implicating PE in the promotion of physically active and sporting lifestyles among young and old alike.

Despite this there remains a dearth of evidence demonstrating the supposedly crucial role that PE is assumed to play (Trudeau & Shephard, 2008). In fact, the precise nature of the relationship between the processes is seldom explored other than in implicit, often speculative and discursive, ways that simply treat as a truism the positive effects of the former (PE) on the latter (youth and adult participation in sport and physically active recreation). Put another way, although a number of studies purport to demonstrate that childhood and adolescent sports participation can be a significant predictor of young adults' participation in sports and physical fitness activities (Perkins, Jacobs, Barber & Eccles, 2004), it remains to be shown that PE, in itself, has any, let alone a significant, role to play. While a few, specifically-designed, programmes demonstrating that PE can have an impact upon levels of physical activity and even adiposity are to be found (see, for example, Naylor & McKay, 2009; Resaland, Andersen, Mamen, & Anderssen, 2011; Sallis et al, 1997), there is little or no evidence that what Gard (2009) has referred to as 'normal PE' has had or is likely to have an impact on regular levels of physical activity in the short-term, let alone medium- and long-term sports participation rates (or even health outcomes).

## **THE ISSUE**

At one level, it is hardly surprising that those professionally, academically and politically concerned with the relationship between PE and youth sport have been inclined more towards presumption and speculation than empirical study. After all, as well as being ideologically predisposed and professionally constrained to view the relationship between PE and youth sport as self-evidently positive, speculation may be all that is available to advocates – not least because physical educationalists do not have what Payne & Payne (2004) might refer to as a classic open and shut case of causality – in the sense that if PE is present (and it is for pretty-much all youngsters of school age in many countries around the world) then participation in sport is not only always present but is only present when young people have experienced PE. Put another way, any exploration of the relationship between PE and youth sport is bound to result in conjecture for two fundamental and inescapable reasons: first, the number of, and complex interrelationships between, variables – that have the potential to impact upon sports participation – precludes the isolation of causal factors and renders the identification of a causal relationship virtually impossible. The upshot is that the only option seemingly available to those of us intent on discovering the holy grail of a 'PE effect' is conjecture on the basis, at best, of correlation. Second, even if there is a causal relationship between PE and sports participation waiting to be discovered, because our research methods are imperfect we will inevitably experience immense, potentially insurmountable, difficulty in identifying any underlying 'reality'.

The possibility – not to say desirability among those with a vested interest<sup>2</sup> – of identifying a causal connection has, nevertheless, been brought into sharper focus in recent years by the substantial growth of (largely) quantitative studies charting the increasing rates, broadening and diversifying forms and changing styles of leisure-sport participation among young people and adults. Many of these studies provide cross-sectional snapshots of increased participation

in ‘out-of-school’ or leisure sport and various physically active recreations – often among age or school cohorts and, occasionally, generations<sup>3</sup>. In addition, some studies (see, for example, Eiðsdóttir *et al.*, 2008; Laakso *et al.*, 2008; Samdal *et al.*, 2006; Scheerder, Vanreusel, Taks & Renson, 2005a; Scheerder, Taks, Vanreusel & Renson, 2005b; Scheerder *et al.*, 2006; Zuzanek, 2005) have generated or utilized longitudinal data, thereby facilitating the identification of trends in youth sports participation. Although studies examining participation in school PE in addition to (and sometimes alongside) leisure sport have been far less prevalent, these too have become more commonplace in recent years (see, for example, Scheerder *et al.*, 2005a, 2005b; Smith, 2006; Sport England, 2003). Because they provide data on PE as well as youth sport, such studies allow (after methodological differences are taken into account) comparisons across studies and, occasionally, the identification of correlations between the two within studies; in other words, the extent to which variables – in this case, levels and forms of participation in PE and youth sport (in the first instance) – increase or decrease and broaden or narrow together.

Nonetheless, as intimated above, while strong positive correlations between PE and youth sport *may* indicate a causal relationship, they may not. Any relationship, whether strong or weak may be spurious inasmuch as observable patterns in either or both variables (PE and youth sport in the first instance) may, in fact, be ‘caused’ by one or other additional factors (or confounding variables), such as age, social class, gender, the influence of friends, the existence of suitable facilities, family socialization and so on. Indeed, even if it were possible to establish that a strong correlation was, indeed, an expression of causality it would not be clear which direction ‘causation’ was working – it is perfectly feasible (not to say, likely), for example, that developments in youth sport in the 1970s and 1980s preceded rather than resulted from developments in PE. Scraton’s (1992) and Roberts’ (1996) observations that PE teachers had responded to changes in young people’s leisure lives in England by adapting the PE curriculum in content and form suggest that this was, indeed, the case and the anticipated outcome of developments in PE aimed at enhancing youth sport – that is, changes in youth leisure sport behaviours – had, in fact, been the original cause of those same developments. In other words, increased participation in PE was a by-product of the true ‘cause’ rather than the cause itself. In a similar vein, Kjønnsen, Fjørtoft & Wold (2009) concluded from their longitudinal study of youngsters in Norway that the evidence did not provide clear answers to the question of whether young people became involved in sports because they liked PE or whether they liked PE because they were already involved in sports. This is an area that evidently requires further investigation.

All-in-all, even if the *raison d’être* of the increasing body of quantitative research on youth sport and PE were to generate testable hypotheses (in order, ideally, to deduce laws or, in the social sciences, law-like generalizations) it would be extremely difficult to directly test the hypothesis that PE has a positive effect on young people’s post-school, leisure-sport participation still less their lifelong adherence to sport and active recreation. It is unsurprising, therefore, that while several studies have suggested a positive relationship between PE (especially what is referred to as ‘enhanced PE’: that is, PE programmes of higher quality and increased frequency) and participation in physical activity outside school, the conclusions in such studies have tended to be couched in the language of contingency: in terms, for example, of the ‘potential’ for schools and PE to ‘influence’ levels of engagement with sport and active

recreation by ‘encouraging increased participation’ (Trudeau & Shephard, 2005: 89) via the kinds of (‘lifetime’) activities more ‘likely’ to have the greatest carry-over value into adult life and which ‘could’ enable PE to make a sufficient contribution to the aim of promoting lifetime participation in physical activity (Fairclough *et al.*, 2002) – in other words, inference or, more accurately, speculation. This may, in truth, be the best that can be attained.

The problems associated with attempts to tease out anything resembling a causal relationship or, rather, causal association (when changes in one systematically result in changes in the other [Payne & Payne, 2004] and which, in the stronger sense of the term causation, can be measured for statistical significance) do not exhaust the explanatory possibilities, however. An alternative, arguably more adequate, approach involves the use of a broader, less rigidly-defined concept of causation similar to that employed in epidemiology and familiar to social scientists more generally. This is a conceptualization of causation in terms of the best available, best fit or best possible explanation of the available evidence (Roberts, 2009) that talks of ‘cause’ in probabilistic terms (if A then B is or seems more likely rather than if A then B). This broader conception of causation deals with likelihood rather than certainty and considers whether developments in one area (PE) appear more-or-less *likely* to create reasonably propitious or favourable sets of circumstances that might, in turn, impact upon leisure-sport and lifelong participation; such as a heightened disposition towards sport and active recreation. This approach to causation is the one employed by Trudeau & Shephard (2005) in their oft-cited study of the effects of school PE programmes on the physical activity levels of participants as children and adults, as well as the attitudes towards physical activity and PE among those same groups. It involves acknowledging the limitations of correlations while, at the same time, accepting that conclusions couched in probabilistic terms (in the non-statistical sense) may not only be inevitable but the most appropriate for understanding complex social processes, such as the relationship between PE and youth and adult sport.

In an attempt to develop more comprehensive models of likelihood, along these lines, some studies have sought to supplement quantitative data (and any statistical correlations to be found therein) with qualitative research in order to triangulate<sup>4</sup> the shape or nature of the various kinds of relationship between PE and youth sport (see, for example, De Knop & De Martelaer, 2001). In this regard (and in relation to physical activity more broadly rather than physical education per se), Marshall (2009) has observed that few studies have been able to unpack the relationships between childhood, youth and physical activity in much detail. As already indicated, this is partly because physical activity is a complex multidimensional behaviour. It is also due, in part, to the limitations of using ‘population data’ in determining causal contributions in a manner that succumbs to the so-called ‘ecological fallacy’ – wherein the (false) assumption is made that what applies at one level of aggregation (such as youth participation in sport generally or among particular groups such as young, white, middle-class males) will also apply at other levels of aggregation (such as girls or particular ethnic minority groups) (Roberts, 2009). Physical education (like physical activity) takes a variety of forms and is experienced by young people in a variety of (more-or-less positive or negative) ways with a variety of consequences for their views of, and involvement in, sport and physical recreation both in and out of school: hence, the potential for a qualitative dimension to studies of this kind. Despite the fact that there has been a tendency in qualitative studies to focus on the pros and cons of sport per se rather than the broader context in which PE and leisure-sport

occur – what Marshall (2009: 84) refers to as the ‘broader socio-ecological factors “without” the activity’ – qualitative methods (and especially in-depth interviews) appear particularly useful due to their potential for identifying processes that account for how variables may relate to each other (Roberts, 2009), such as the significance of family and friends in the emergence and development of young people’s sporting capital and, in the longer run, their sporting habituses.

In this regard, the qualitative dimensions to studies often generate data that has the potential to explain why it may be legitimate and/or plausible to move beyond any correlational associations to talk in terms of ‘causal’ relationships, albeit at the level of probability (in the aforementioned non-statistical sense). Notwithstanding Marshall’s comment that qualitative data can be as ‘limited’ (Marshall, 2009: 84) as cross-sectional survey data (and can, indeed, be ‘messy’ where constituted of ‘vague and superficial statements from young people’ that are ‘difficult to interpret or situate in a meaningful theoretical context’ while untangling ‘truth’ from ‘excuse’ [p.84]), interviews, in particular, can generate data regarding young people’s perceptions of how school PE has or has not impacted upon their leisure-sport: whether, for example, young people perceive school PE as having led them (i) to initiate involvement with leisure-sport in general or specific sports and physically active recreation in particular; (ii) to increase or decrease their levels of leisure-sport participation (other than after-school or extra-curricular PE which, in itself, adds to time spent); (iii) to broaden or restrict the number and types of activities they engage with or, for that matter, specialize or generalize in one or more sports; or, alternatively, (iv) to turn their backs on sport and physically active recreation altogether (in other words, not simply drop-off but drop-out).

Against this backdrop, the following sections outline some of the findings from a number of mostly quantitative but occasionally qualitative and mixed-methods studies of PE and youth and adult sport in order to draw some conclusions regarding what the extant research might reveal about the likely relationships between the two, as well as the claims made for a ‘PE effect’.

Before examining youth participation in detail, it is necessary to insert a caveat: while some of the studies mentioned below provide data on young people in North America and Australia, the overwhelming majority of the material has a European focus – where the bulk of such studies have been conducted – and western and northern Europe in particular. It is my contention, nevertheless, that the issue of the role of PE in promoting participation in sport and physical activity has currency across the PE world.

## **YOUTH PARTICIPATION IN LEISURE-SPORT AND PHYSICAL EDUCATION**

To date, much of what is known about the participation of young people in sport in and out-of-school (that is, in their leisure, or spare, time) has been culled from a variety of national and cross-cultural small- to large-scale surveys of school-age children and young people. Utilizing club membership figures and survey data over the last 20 years in the 25 EU member states (or, where this was not possible due to the lack of data, a geographical example of several member states) a study by the Mulier Institute (van Bottenburg, Rijnen & van Sterkenburg, 2005), for example, compared and contrasted data on the nature and extent of sports participation among youth and adults and concluded that participation in sport had

become extensive within the member states of the European Union. Similarly, Telama, Naul, Nupponen, Rychtecky & Vuolle (2002) drew together the results of cross-sectional studies of a sample of 6,479 12 and 15 year olds (3,270 males, 3,209 females) from six European countries (Belgium, Estonia, Finland, Germany, Hungary and the Czech Republic) exploring, among other things, leisure-time sport and physical activity participation in what the authors call 'organised competitive sport' and 'recreational sport'. Telama *et al.*'s findings corroborated those of van Bottenburg *et al.*, as well as a number of country-specific studies across Europe (see, for example, Breedveld, 2003; DeKnop and DeMartelaer, 2001; Scheerder *et al.*, 2005a, b; Sport England, 2003), in concluding that 'physical activities and sports [continue to] belong to the most popular [leisure] activities of young people' (Telama *et al.*, 2002: 140). At the level of individual countries, several relatively recent studies illustrate the correspondence between the findings of intra- and international research. Studies of participation among young people in Scandinavian countries, for instance, have consistently pointed towards relatively continuous increases in participation (in sport and/or physically active recreation) over several decades. Laakso *et al.* (2008: 151) noted that 'Leisure time physical activity [including sport] among young people in Finland increased ... from 1977 to 2007', especially among young women, while in their study of trends in vigorous physical activity and participation in sports clubs among cohorts of Icelandic adolescents in 1992, 1997, 2000 and 2006, Eiðsdóttir *et al.* (2008) observed 'an overall increase in vigorous physical activity and participation in sports clubs over the past decade among both genders' (p.289). In terms of current levels of participation in Scandinavia, Vaage's (2009) report on Norwegian youngsters revealed that 84% of 6-15 year-olds took part in leisure-time physical activity (including sport and active recreations) in 2007 at least once a week, with 26% taking part three to four times weekly and another 11% almost daily. In Western Europe, Elling & Knoppers (2005) study of 1,025 youth between 14 and 20 years of age in the Netherlands found that nearly two-thirds of the respondents actively participated in sport with a mean intensity of three times a week.

Despite the fact that, just as with adults, there remain significant minorities of young people in all of these studies doing relatively little or absolutely nothing in participatory terms, it seems that more young people across Europe and the developed world are doing more sport and physically active recreation than ever before. Taken together, the findings from an array of quantitative studies suggest that – despite the well-charted tendency for youngsters to reduce levels of participation over the course of their secondary school careers, from a peak around the transition from primary to secondary schooling (see, for example, Belanger, Gray-Donald, O'Loughlin, Paradis, & Hanley's [2009] study of American adolescents) – involvement in sport among young people has, over several decades, become sufficiently commonplace to justify talk of the 'sportization' of young people's lives (Brettschneider, 1992; Telama, Nupponen & Pieron, 2005). Ironically, in light of Belanger *et al.*'s findings, Theokas (2009) has noted that 'Sport participation among children and youth is [now] ubiquitous in U.S. society'.

Alongside increases in levels and rates of participation over time, there has also been a broadening (in terms of numbers of sports) and diversification (different sports) of participation. From their *Cross-Cultural Studies on Youth Sport in Europe*, Telama *et al.* (2002: 141) concluded that 'there were many more physical activities and sports mentioned

both as recreational and competitive sports than those in which young people participated, say, 20 years ago'. A particular feature of trends in participation in recent decades has been a shift towards active recreation and, in particular, so-called 'lifestyle activities'<sup>5</sup>. In northern European countries such as Finland, young people are said to 'participate more in unorganized physical activity than in organized sport' (Telama *et al.*, 2005: 128). The shift towards more individual and recreational activities is also evident within what might broadly be termed games. While participation levels and rates in some games (football and handball, for instance) in Norway, for example, have remained relatively stable in recent years, decreases in games such as bandy, ice-hockey, basketball and volleyball have occurred alongside increases in more flexible individual/partner games (such as orienteering) and physically active recreations (such as cross-country skiing, strength training and jogging) (Vaage, 2009).

The growing popularity of lifestyle activities notwithstanding, 'the traditional style of youth participation in organized sport in formal organizational settings (such as sports clubs) remains very popular ... among young people of school age' (Scheerder *et al.*, 2005b: 337) not only in Flanders but Europe-wide. Laakso *et al.* (2008: 149) note that while 'the frequency of unorganized spontaneous leisure time physical activity had remained at the same level or increased slightly', the biggest increases in youth sports participation in Finland had been observed in sports clubs which, by implication, involve organized sports. Similar conclusions can be drawn from studies of youth sports participation elsewhere in Scandinavia. In Sweden, Kristen, Patriksson & Fridlund (2003: 25) pointed up what they referred to as the 'dominance' of sport in the lives of young people and described the 'sports movement' as being the country's 'largest and most vigorous popular movement' (p. 24). Similarly, Quennerstedt & Öhman (2008) observed that sport 'constitutes an important part of many young people's lives' in Sweden with 'large numbers' of children and young people participating 'in sports activities organized by sports clubs' (p.298) on a weekly basis. All-in-all, Telama, Laakso & Yang's (1994: 68) observation that, in the early 1990s, the most popular types of sports (or, in some cases, active recreations) among adolescents in Finland were, in effect, lifestyle activities (specifically cycling, swimming, walking and running) *alongside* other more competitive, performance-oriented team sports (such as soccer and basketball) remains equally applicable to the contemporary youth sport scene not only in Scandinavia but across Europe, where sport and team games also remain an integral feature of many young people's participation styles *alongside* lifestyle activities (De Knop & De Martelaer, 2001; Elling & Knoppers, 2005; Scheerder *et al.*, 2005b; Seabra, Mendonca, Thomis, Malina & Maia, 2007; Telama *et al.*, 2002; Telama *et al.*, 2005).

Increases in participation in games that might be deemed lifestyle or recreational activities – such as tenpin bowling and Ultimate Frisbee – alongside those that are more stereotypically sporting in orientation – such as basketball and golf – reflect the complexity of the youth sports participation scene. It is worthy of note that lifestyle activities have not only experienced the most substantial increases in participation among young people in recent decades but remain the kinds of activities 'with the most regular participants' (Coalter, 2004: 80) as well as the greatest likelihood of tracking in adulthood. In the US, for example, Belanger *et al* (2009) found that 'light and moderate activities that can be done alone were the most sustainable' among youth (Marshall, 2009: 85) while 'Activities with the lowest levels

of discontinuation, such as physical conditioning, also had the highest levels of re-engagement, suggesting that a class of physical activity behaviours may exist that appear to be more highly valued by young people' (Belanger *et al.*, 2009; cited in Marshall, 2009: 85). Yet, while individualistic, more recreational and flexible activities have come to 'dominate' (Coalter, 2004: 80) the participatory profiles of many young people, it is evident that conventional sports not only remain popular among secondary-age youngsters in their leisure time but some – such as golf, badminton and martial arts – track into youth and through to adulthood for significant numbers of people. Overall, the trends in leisure-time sport and active recreation among youth reflect a broadening and diversification of participation rather than a wholesale rejection of sport *per se*. Instead of replacing traditional sporting styles, 'new styles of physical activities have been added to the sports scene' (Scheerder *et al.*, 2005b: 337). All told, while the shift towards more individualistic, recreational and lifestyle activities may not signal the end of sport in its more competitive, institutionalized forms it is, at the very least, signalling a 'redrawing of the traditional boundaries and meaning of sport' (Coalter, 1999: 37).

Despite the relative wealth of data on leisure-sport among young people and adults there is a good deal less data on PE, especially of the kind that allows for the exploration of the relationship between PE and youth sport, let alone PE and lifelong participation. Nevertheless, those relatively few studies across Europe that have begun to chart developments in PE provision in recent decades suggest that the re-drawing of boundaries evident in youth sport has been equally apparent, albeit to a lesser extent, in school PE. In England, survey data imply a similar process of broadening of PE curricula has been occurring over several decades (Roberts, 1996; Smith, 2006). Indeed, more recently, PE curricula in England have begun to embrace such varied activities as rock-it-ball (a variation on pop-lacrosse), Ultimate Frisbee (Frisbee played to American football rules) and tag-rugby. Further afield, Kjønneksen *et al.* (2009) attribute the popularity of PE in Norwegian schools to the more recreational nature (compared to normal academic lessons) and broader content (including recreational outdoor activities and dance alongside sport) of PE lessons. It is worth reiterating at this point, nevertheless, that there have been very few studies (see, for example, Green, Smith & Thurston, 2009) of the ways in which physical educationalists have, as matter of policy and/or practice, responded to any apparent mismatch between youngsters' leisure sport and the curriculum content of PE by broadening what they offer beyond 'traditional' activities.<sup>6</sup>

The fact that similar patterns to those evident in youth sport are to be found (albeit in muted form) in PE, reveal little or nothing, however, about the relationship between PE and youth sport let alone lifelong participation. The question remains, therefore: what, if anything, have developments in youth sport (and, for that matter, lifelong participation in sport) to do with PE?

### **PHYSICAL EDUCATION, YOUTH SPORT AND LIFELONG PARTICIPATION**

Among the relatively small but growing number of studies of participation PE and youth sport (see, for example, Smith, 2006; Fairclough *et al.*, 2002) youth sport and sports participation in adulthood (Roberts & Brodie, 1992) and PE, youth sport and adult sports participation (Scheerder *et al.*, 2006), few have been in a position to explore the interrelationships between them. One study that sought to place broader socio-ecological factors (such as peer influences,

availability of facilities, and competing alternatives) alongside psycho-social factors such as competence, enjoyment and motivation was Smith's study of 15-16 year olds in north-east Wales and north-west England which supplemented quantitative data with a qualitative study – albeit among a particular cohort at one point in time. Among other things, Smith's (2006) study cast doubt on the widely-held assumption that by the time they reach the latter years of compulsory schooling young people have begun to disengage in substantial numbers from school PE, let alone leisure-sport. Despite the fact that drop-out (and, for that matter, drop-off rates from leisure-sport and physically active recreation in youth and young adulthood remain notoriously heavy (Birchwood, Roberts & Pollock, 2008), when taken together the findings from the studies of Scheerder *et al.* (2005a,b) and Smith (2006), for example, corroborate claims that there has been a marked decline in the drop-out rate during late adolescence and that young people are much more likely to continue participating in sport and physical activities after completing their full-time education (Roberts, 1996). Indeed, Smith's findings also indicated that those 15-16 year-olds who participated in most of the curricular PE activities on offer were far more likely to report having participated in a high number of leisure sports and physical activities as well as extra-curricular PE sessions in the previous 12 months (Smith, Thurston & Green, 2007). More specifically, Smith (2006) found statistically significant correlations between the numbers of sports in which both male and female 15-16 year-olds participated in National Curriculum PE in England and Wales and their participation in leisure-sport and physical activity. Those who had experienced between 13-25 different activities in curricular PE during the school year were three times more likely to have been involved in a high number (10-30) of leisure-sports than those who had engaged with the fewest (five or less) PE activities. Smith found the same strong correlations between the numbers of sports in which (male and female) 15-16-year-olds participated in during PE and extra-curricular PE: once again, the group who took part in a high number of curricular PE activities (13-25) were three times more likely to participate in three or more extra-curricular PE activities than those involved in the fewest curricular PE activities.

Such findings still beg questions, nevertheless, regarding the directionality of any association or effect. As previously indicated, one of the ways in which some studies have indirectly explored the question of whether these findings are expressions of cause or effect (and even both in different ways and to varying degrees) – or, for that matter, a consequence of confounding variables – is by supplementing quantitative with qualitative data. Two prominent examples of multi-method approaches incorporate in-depth interviews that explore either young people's perceptions of PE in relation to their leisure lives or their prior sporting biographies.

Before exploring examples of each of these, however, it is worth saying something about one of the main areas in which studies of PE and youth sport have worked with a model of likelihood (seeking to identify ways of identifying and developing the most propitious circumstances for encouraging youth sport and PE); that is, in relation to 'attitudes' towards PE and sport. The available evidence is, however, unpromising. Kjønnsen *et al.* (2009), for example, examined whether attitude to PE during adolescence (defined according to the young person's likes and dislikes as expressed in opinion statements) predicted physical activity in adulthood. The findings from Kjønnsen *et al.*'s (2009) study – of 630 subjects from 22 randomly selected schools (54 classes) in Hordaland, a county in western Norway,

who completed questionnaires eight times over a 10-year period between 1990 and 2000 as part of the *Norwegian Longitudinal Health Behaviour Study* – indicated only a moderate association between attitude to PE and participation in organized youth sport during adolescence. In addition, while both positive attitudes to PE and participation in organized youth sports significantly predicted physical activity in adulthood, the proportion of explained variance was very small. As with other similar studies (see, for example, Trudeau & Shephard 2005), the weak associations identified between attitudes to PE and involvement in youth sport and active recreation add little to our understanding of the relationship between them for two reasons: first, such attitudes are likely to reflect the influence of confounding variables (Telama *et al.*, 2005) – not least of which would be family background, social class and gender – and, second (and as previously indicated), such studies are simply unable to disentangle the direction of cause and effect in the relationship between attitudes and involvement.

Studies of young people's perceptions of the relationship between PE and youth sport (and, for that matter, adult sporting lifestyles) hold out more promise not least because adding qualitative data to quantitative measures has enabled a degree of triangulation. In Smith's (2006) study, young people compared PE unfavourably with leisure-sport in what they viewed as several crucial aspects of provision and pointed to ways in which they believed PE could make an impact on their leisure-sport lives. Greater degrees of choice, more flexibility, greater emphasis on participation for intrinsic reasons (specifically fun/enjoyment), less formality, less emphasis upon performance and physicality were all prominent features of the style of PE that the young people in Smith's (2006) study claimed to prefer; not least because it allowed them to imitate (young) adult lifestyles. The 15-16-year-olds wanted to experience activities within PE that they enjoyed in their leisure-time and anticipated participating in when they were older. It was unsurprising, therefore, to find that many of them (and girls, in particular) appeared keen to avoid highly-structured, teacher-organized, sports activities, favouring adult-like sports and physical recreations (for example, 'going to the gym') undertaken in contexts where teachers were more likely to treat them as young adults. In this regard, Kjønnsen *et al.*'s (2009) study threw some light on the possible relationship between attitudes and participation when they concluded that girls were more likely to be active at 23 years of age if they actually liked PE rather than if they simply took part in PE as such.

Perhaps the most revealing of mixed-methods studies providing (indirect) evidence about the likely relationship between PE, youth sport and lifelong participation are those exploring sporting biographies or careers. Two such studies that have provided very interesting results are those of Roberts & Brodie (1992) in the UK in the early 1990s and Birchwood *et al.* (2008) in the South Caucasus more recently. Each, in their own way, has not only cast doubt on the assumption that PE is likely to have a substantial influence on youth sport but have also highlighted the potential significance of confounding variables such as social class, gender and, in particular, family socialization.

From their analysis of the sports careers (or biographies) of representative samples of 31-37 year olds from three countries in the South Caucasus – Armenia, Azerbaijan and Georgia – Birchwood *et al.* (2009) concluded that many differences in sport participation rates that are commonly attributed to circumstances and experiences after age 16 (in higher education, for

example) already existed by that age and that family cultures were the source of the crucial pre-dispositions to participate which appeared to have lasting effects. In short, they argued that ‘all the major, recognised differences in adult rates of sports participation between socio-demographic groups are generated during childhood, via cultures that are transmitted through families, and that post-childhood experiences play a relatively minor direct part in generating these differences’ (Birchwood *et al.*, 2008: 283). On this view, whether or not young people start or stop participating in sport – or, for that matter, increase or decrease their levels of participation as they approach and negotiate adolescence and adulthood – may very well depend upon pre-dispositions that have been formed earlier in life (Birchwood *et al.*, 2008) rather than any well-meaning interventions such as school PE. Birchwood *et al.* (2008) add that changes in the overall rates of participation (whether up or down, overall) among particular age groups (such as the general increases witnessed in the 1970s and 1980s) are probably best explained in terms of ‘the standard pre-disposition within a socio-demographic group’ (Birchwood *et al.*, 2008: 284) towards participation in sport and, for that matter, all other forms of leisure. Interestingly, this finding may also explain the school and class-related (rather than class-based) characteristics of participation in PE and youth sport among the 15-16 year olds in Smith’s (2006) study.

This same argument applies to later-life participation in sport and physically active recreation: namely, that in so far as adult leisure tastes are, if not set in stone then heavily circumscribed by childhood experiences prior to school-leaving age, later-life participation in sport and active recreation is largely ‘determined’ by the time young people reach youth. In this regard, Engstrom’s (2008: 339) 38-year follow-up study of Swedish adults revealed that ‘Neither membership of a sports clubs nor the amount of time spent on sporting activity at the age of 15 had any significant association with the exercise habits displayed in middle age’. In an earlier study which used quantitative data as a basis for follow-up qualitative research in the form of interviews, Roberts & Brodie (1992) found that the chief characteristic of those men and women who had become ‘committed’ to sport as adults (who had played regularly between the ages of 16 and 30 and who had become ‘locked-in’ to sport with the result that they were frequently established on continuous sports careers which were unlikely to be disrupted for many more years) was that they had been active in several (and usually three or more) sports throughout their younger lives. While, on the face of it, this leaves open a developmental role for PE in the crucial years of childhood and early youth, if, as Birchwood *et al.* (2009) suggest, the cultural dimension of family environments – rather than school PE – is the prime source of many youngsters’ predispositions towards sport and physically active recreation, then PE is only likely to make a difference around the margins by, for example, reinforcing positive attitudes towards sport and active recreation and increasing and broadening the levels and forms of participation of those already predisposed towards engaging with sport.

## **CONCLUSION**

The central concern of this paper has been the issue of whether it is possible to identify, in any meaningful sense, a ‘causal’ link between school PE, youth sport and even lifelong participation that might implicate PE in promoting increased engagement with sport and physically active recreation among young people – not least, as a step towards enhancing adherence to sport and active recreation over the life course. The discursive ways in which

physical educationalists often talk about the relationship between PE and youth sport betrays an intuitive tendency to conceive the relationship between PE and youth sport in deterministic and mechanistic terms: in a word, positivistically. Indeed, if the youngsters in Smith's (2006) study are anything to go by, young people themselves also assume that encouraging lifelong adherence to sport and active recreation is a central function of PE.

At first glance, the portents appear favourable. Notwithstanding the inevitability of 'drop-out' among youth in the post-school years and over the life-course, there is a body of research – exploring, among other things, the so-called 'determinants' and 'correlates' of participation in sport over the life course – which purports to show that active participation in sport during childhood and youth is an important prerequisite for involvement in later life; in other words, the foundations for sports careers appear to be laid in childhood and youth (see, for example, Birchwood *et al.*, 2008; Roberts & Brodie, 1992; Scheerder *et al.*, 2006). Nonetheless, such research still leaves open the question 'What can or does PE *actually* contribute to any "carry-over" effect'?

It is highly likely that, for some young people at least, the effects of PE on their leisure-sport participation are causal in a necessary sense; that is, without the impact of PE they simply would not take part in any sport in their spare time. Indeed, a wealth of anecdotal evidence from PE teachers, elite athletes and youngsters themselves reinforces this perception. PE may have the potential, therefore, to be significant for some youngsters for whom it provides the only opportunity to engage with sport and active recreation or with specific activities. It is equally feasible that without the intervention of PE, some youngsters would not take part in particular sports in their leisure to which they are introduced by their PE teachers via curricular or extra-curricular PE. In such cases, PE may be sufficient in itself to have the desired effect. It is unlikely, nevertheless, that there will be one process within PE that explains how school sport influences youngsters' sporting and physical recreation behaviours outside school, let alone later in life – whether that process be the broadening of PE curricula, greater degrees of so-called 'activity choice', alternative approaches to teaching games, or even charismatic and motivational teaching. Indeed, either individually or in configuration, these PE processes may impact to a greater or lesser extent upon different groups, at different times and in different places: for example, the impact on primary-aged youngsters of Scandinavian schools' emphasis on friluftsliv [outdoor life]; the dramatic growth of indoor sports facilities, often attached to secondary schools, in the UK in the 1970s; or the broadening of PE curricula across Europe in recent decades.

Such an optimistic view of the potential of PE notwithstanding, studies of sporting careers or biographies suggest that school interventions (via PE) are, in reality, more likely to impact upon youth sport around the margins. If qualitative alongside quantitative research (see, for example, Birchwood *et al.*, 2008; Roberts & Brodie, 1992) into the sporting careers of those locked into sport as adults provides a barometer of the impact of PE, then developments in their leisure-sport participatory profiles are more likely among those already engaging with sport and, possibly, those 'biddable' youngsters on the margins of commitment who dip into sport and experiment. PE is most likely to be effective within what Birchwood *et al.* (2008) refer to as the minimum-maximum range to which young people are already predisposed by virtue of their socialization into or away from sport in the family. In other words, where PE

might make a difference seems likely to be restricted, for the most part, to those youngsters already predisposed towards sport and active recreation. Indeed, any assumed relationship may, in fact, be spurious. If the findings of Birchwood et al. (2008) are anything to go by, family socialization into sports participation appears a far better bet than PE as a major 'cause' of an enduring propensity to engage in sport among young people. In short, we may simply have to accept that there are strong, relatively determinant influences on involvement in sport and physical recreation generally (beyond, as well as including school PE) that simply lie outside the scope of formal PE interventions (Evans and Davies, 2010).

Because sports participation is a complex social phenomena – involving differing activities, a multiplicity of sometimes overlapping sometimes markedly different skills, differing levels of commitment and intensity, different forms of participation (for example, leisure and top-level) and differing motivations – it is rarely the product of a single cause. Thus, knowing which social processes to study in order to make sense of lifelong adherence to sport and physically active recreation is far from straightforward. It is, perhaps, inevitable therefore that a focus on a 'PE effect' is likely to over-simplify the reality of sports participation. Interventions such as PE may work for some but not for others and will work in some circumstances (for example, those biddable youngsters on the margins who while not having been deeply socialized into sport by their families may have some experience and physical and social capital to draw on) but not in others (such as those 'locked out' by virtue of class/ethnic/gender/family socialization).

All things considered, the potential for developments in PE to impact upon youth leisure-sport and, eventually, lifelong participation notwithstanding, the plural nature of the influences (variables) likely to impact leisure patterns in general, and sport and active recreation in particular, means that it is almost impossible for any one policy – such as a broader and more varied, and universal, PE curriculum – to have other than a marginal influence on public leisure behaviour (Roberts, 2006). Birchwood *et al.* (2008: 297) observe that 'it is likely that even when sport is not a priority in schools or in families, and when local facilities are non-existent, some young people will still play, maybe because they are exceptionally talented or just exceptionally motivated for whatever reasons.' In this regard, in terms of the relationship between PE and youth sport, it is likely that causation – in the broader, looser sense of the term – will be reciprocal or circular. Developments in PE provision involving supplementing the traditional PE curriculum with newer, lifestyle sports and incorporating an element of 'activity choice' will be as much an effect of developments in youth sport as a cause.

This paper has, among other things, acknowledged the near-impossibility of achieving any kind of certainty regarding a 'PE effect' on youth sport, let alone lifelong sports participation, not least because 'most patterns of behaviour have multiple causes' (Roberts, 2009: 216). Nonetheless, if we are to develop a more nuanced and, therefore, adequate understanding of both the relationship between PE and youth sport (and, in the longer run, lifelong participation) and the interplay between other significant variables (and especially parents and friends) in sports socialization, there is evidently a need for more longitudinal and biographical, as well as qualitative alongside quantitative, research exploring sports careers and the sporting habituses of young people; not least in order to better understand precisely what circumstances PE interventions might work to enhance youth involvement in sport and

physical activity and, ultimately, lifelong participation. There is, in other words, a need for studies of sports participation among children and young people that can help, in Marshall's (2009: 84) terms, dissect the complexities of activity participation and non-participation at a behavioural level. At the same time, there is a need for what might be termed socio-ecological studies of the interdependencies in young people's lives. Put another way, there is a need for multi-method approaches involving quantitative studies of young people's PE, extra-curricular PE and leisure sport participatory patterns coupled with qualitative studies that explore the youngsters' perceptions of any interrelationship between these aspects of their sporting lives.

## **ACKNOWLEDGEMENT**

I am immensely grateful to the two blind reviewers for their constructive and helpful comments on the original draft of the paper.

## **NOTES**

<sup>1</sup> Youth is defined as a life-stage that in chronological terms can be very broadly mapped onto the latter teenage years, with some leeway at the upper end to include the post-teen years up to young adulthood. Thus, youth is regarded as a period of transition ranging from roughly 15 to 25 years. For the purposes of this paper the emphasis will be on the latter secondary school years.

<sup>2</sup> It is worthy of note that a major reason why the PE community has felt compelled to 'prove' that PE can increase physical activity now and over the lifespan – and, as a consequence, has tended to be supportive of this claim, offering it up to policy makers as a 'PE effect' – has been a desire to bolster and extend the place of PE and sport in schools. Nevertheless, it is a hostage to fortune for physical educationalists to attach themselves so vehemently to a claim that appears so untenable and may well, despite the substantial investment of resources into strategies such as School-Sport Partnerships in England, be shown to be, at worst, unachievable and, at best, all but impossible to prove. Nevertheless, in the context of increasing pressures on PE resulting, among other things, from the incipient marketization of education systems that threaten to bring about the marginalisation of the subject it is unsurprising that physical educationalists have, indeed, chosen this course of action.<sup>6</sup>

<sup>3</sup> And, as Marshall (2009) observes, studies reliant on cross-sectional designs have simply failed to provide plausible and compelling let alone conclusive evidence for a causal relationship

<sup>4</sup> Triangulation refers to examining a subject from two or more angles or perspectives in order to arrive at a more adequate or valid portrayal.

<sup>5</sup> Lifestyle sports or activities are best defined as non- or, at least, less-competitive, more recreational, flexible, individual or small group activities, sometimes with a health and fitness orientation (Coalter, 1999); in other words, activities that can be undertaken *how* (more-or-less competitively, for example), *where* (commercial gyms, voluntary or local authority sports centre), *with whom* (singly or with friends) and *when* (in bouts of spare time) they want.

<sup>6</sup> I am grateful to one of the anonymous reviewers for this point.

## REFERENCES

Bélanger, M., Gray-Donald, K., O'Loughlin, J., Paradis, G. and Hanley, J. (2009) When adolescents drop the ball: sustainability of physical activity in youth', *American Journal of Preventive Medicine*, 37(1), 41-49.

Birchwood, D., Roberts, K. and Pollock, G. (2008) Explaining differences in sport participation rates among young adults: Evidence from the South Caucasus', *European Physical Education Review*, 14(3), 283-300.

Breedveld, K. (2003) Sport and social capital. Good hopes and high fears, in: I. Hartmann-Treus, B. Rulofs and S. A. Luetkens (Eds) *Sport and Social Order: Challenges for Theory and Practice. Proceedings of the 2nd World Congress of Sociology of Sport* (Cologne, International Sociology of Sport Association), 202-226.

Brettschneider, W.-D. (1992) Adolescents, leisure, sport and lifestyle, in: T. Williams, L. Almond and A. Sparkes (Eds), *Sport and Physical Activity: Moving Towards Excellence. The Proceedings of the AISEP World Convention* (London, Spon), 536-550.

Coalter, F. (1999) Sport and recreation in the United Kingdom: Flow with the flow or buck the trends? *Managing Leisure*, 4(1), 24-39.

Coalter, F. (2004) Future sports or future challenges to sport?, in: Sport England (Ed) *Driving Up Participation: The Challenge for Sport* (London, Sport England), 79-86.

Corbin, C. (2002) Physical activity for everyone: What every educator should know about promoting lifelong physical activity, *Journal of Teaching in Physical Education*, 21(2), 128-144.

De Knop, P. & De Martelaer, K. (2001) Quantitative and qualitative evaluation of youth sport in Flanders and the Netherlands, *Sport, Education and Society*, 6(1), 35-51.

Diamant, A.L., Babey, S.H. & Wolstein, J. (2011) *Adolescent physical education and physical activity in California*. Health Policy Brief. California: UCLA Center for Health Policy Research. May 2011.

Dixon, M.A., Warner, S.M. & Bruenig, J.E. (2008) More than just letting them play: Parental influence on Women's lifetime sport involvement, *Sociology of Sport Journal*, 25, 538-559.

Eiðsdóttir, S. Þ., Kristjánsson, Á. L., Sigfúsdóttir, I.D. & Allegrante, J.P. (2008) Trends in physical activity and participation in sports clubs among Icelandic adolescents, *The European Journal of Public Health*, 18, 289-293.

Elling, A. & Knoppers, A. (2005) Sport, gender and ethnicity: Practices of symbolic inclusion/exclusion, *Journal of Youth and Adolescence*, 34(3), 257-268.

Engstrom, L.-M.. (2008) Who is physically active? Cultural capital and sports participation from adolescence to middle age – a 38-year follow-up study, *Physical Education and Sport Pedagogy*, 13(4), 319-343.

Evans, J. & Davies, B. (2010) Family, class and embodiment: why school physical education makes so little difference to post-school participation patterns in physical activity. *International Journal of Qualitative Studies in Education*, 23:7, 765-784.

Fairclough, S., Stratton, G. & Baldwin, G. (2002) The contribution of secondary physical education to lifetime physical activity, *European Physical Education Review*, 8(1), 69-84.

Flintoff, A., Long, J. & Hylton, K. (2005) Editors' introduction. Youth sport and active leisure: Theory, policy and practice, in: A. Flintoff, J. Long & K. Hylton (Eds) *Youth, Sport and Active Leisure: Theory, Policy and Participation*. LSA Publication No. 87 (Eastbourne, Leisure Studies Association), v-x.

Gard, M. (2009) Personal communication.

Green, K. (2000) Exploring physical education teachers' everyday 'philosophies' from a sociological perspective, *Sport, Education and Society*, 5(2), 109-129.

Green, K. (2003) *Physical Education Teachers on Physical Education* (Chester, Chester Academic Press).

Green, K., Smith, A. & Thurston, M. (2009) Busy doing nothing? Myth and reality in physical education teachers' perceptions of young people's participation in sport and physical activity, *Sport, Education and Society*, 14(4), 401-420.

Haerens, L., Kirk, D., Cardon, G., de Bourdeaudhui I. & Vansteenkiste, M. (2010) Motivational profiles for secondary school physical education and its relationship to the adoption of a physically active lifestyle among university students, *European Physical Education Review*, 16(2), 117-139.

Hardman, K. (2005) 'Foreword', in: U. Puhse & M. Gerber (Eds) *International Comparison of Physical Education. Concepts, Problems, Prospects* (Oxford, Meyer and Meyer Sport UK), 12-18.

Harris, J. (2005) Health-related exercise and physical education, in: K. Green & K. Hardman (Eds) *Physical Education: Essential Issues* (London, Sage Publications), 78-97.

Kjønniksen, L., Fjørtoft, I. & Wold, B. (2009) Attitudes to physical education and participation in organized youth sports during adolescence related to physical activity in young adulthood: a 10-year longitudinal study, *European Physical Education Review*, 15(2), 139-154.

Kristen, L., Patriksson, G. & Fridlund, B. (2003) Parents' conceptions of the influences of participation in a sports programme on their children and adolescents with physical disabilities, *European Physical Education Review*, 9(1), 23–41.

Laakso, L., Telama, R., Nupponen, H., Rimpela, A. & Pere, L. (2008) Trends in leisure time physical activity among young people in Finland, 1997-2007, *European Physical Education Review*, 14(2), 139-155.

McKenzie, T.L. (2009) Physical education's role in physical activity and health promotion. Plenary presented at the 14th European College of Sports Science, Oslo, 25th June 2009.

MacNamara, A., Collins, D., Bailey, R., Toms, M., Ford, P. And Pearce, G. (2011) Promoting lifelong physical activity and high level performance: realising an achievable aim for physical education, *Physical Education and Sport Pedagogy*, 16(3): 265-278.

Marshall, S. (2009) Editorials and commentary: Dropping the ball and picking up fat. Youth physical activity, body fatness, and the conundrum of causality, *American Journal of Preventive Medicine*, 37(1), 84-86.

Naylor, P-J & McKay, H.A. (2009) Prevention in the first place: schools as a setting for action on physical inactivity, *British Journal of Sports Medicine*, 43(1), 10-13.

Payne, G. & Payne, J. (2004) *Key Concepts in Social Research*. (London, Sage).

Perkins, D.F., Jacobs, J.E., Barber, B.L. & Eccles, J.S. (2004) Childhood and adolescent sports participation as predictors of participation in sports and physical fitness activities during young adulthood, *Youth & Society*, 35(4), 495-520.

Quennerstedt, M. & Öhman, M. (2008) Swedish physical education research, *Physical Education and Sport Pedagogy*, 13(4), 295-302.

Resaland, G.K., Andersen, L.B., Mamen, A. & Anderssen, S.A. (2011) Effects of a 2-year school-based daily physical activity intervention on cardiorespiratory fitness: The Sogndal school-intervention study, *Scandinavian Journal of Medicine & Science in Sports*, 21: 302-309.

Roberts, K. (1996) Young people, schools, sport and government policy, *Sport, Education and Society*, 1(1), 47-57.

Roberts, K. (2006) *Leisure in Contemporary Society* (2<sup>nd</sup> edition) (Wallingford, CABI).

Roberts, K. (2009) *Key Concepts in Sociology* (Basingstoke, Palgrave MacMillan).

Roberts, K. & Brodie, D. (1992) *Inner-City Sport: Who Plays and What Are the Benefits?* (Giordano Bruno, Culemborg).

Roberts, K., Pollock, G., Tholen, J. & Tarkhishvili, L. (2009) Young leisure careers during post-communist transition in the South Caucasus, *Leisure Studies*, 28(3), 261-277.

Sallis, J.F., McKenzie, T.L., Alcaraz, J.E., Kolody, B., Faucette, N. and Hovell, M.F. (1997) The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. Sports, play and active recreation for kids, *American Journal of Public Health*, 87(8), 1328-1334.

Samdal, O., Tynjala, J., Roberts, C., Sallis, J.F., Villberg, J. & Wold, B. (2006) Trends in vigorous physical activity and TV watching of adolescents from 1986 to 2002 in seven European countries, *European Journal of Public Health*, 17(3), 242-248.

Scheerder, J., Vanreusel, B., Taks, M. & Renson, R. (2005a) Social stratification patterns in adolescents' active sports participation behaviour: a time trend analysis 1969-1999, *European Physical Education Review*, 11(1), 5-27.

Scheerder, J., Taks, M., Vanreusel, B. & Renson, R. (2005b), Social changes in youth sport partnership styles: The case of Flanders (Belgium), *Sport, Education and Society*, 10(3), 321-41.

Scheerder, J., Thomis, M., Vanreusel, B., Lefevre, J., Renson, R. Vanden Eynde, B. & Beunen, G.P. (2006) Sports participation among females from adolescence to adulthood, *International Review for the Sociology of Sport*, 41(3-4), 413-30.

Scruton (1992) *Shaping Up to Womanhood. Gender and Girls' Physical Education* (Buckingham, Open University Press).

Seabra, A.F., Mendonca, D.M., Thomis, M.A., Malina, R.A. & Maia, J. (2007) Sports participation among Portuguese youth 10-18 years, *Journal of Physical Activity and Health*, 4(4), 370-380.

Shepherd, R.J. & Trudeau, F. (2000) The legacy of physical education: Influences on adult lifestyle, *Pediatric Exercise Science*, 12, 34-50.

Smith, A. (2006) *Young People, Sport and Leisure. A Sociological Study of Contemporary Youth*. Unpublished PhD thesis (Chester, University of Chester).

Smith, A., Thurston, M. & Green, K. (2007) Young people's participation in extra-curricular physical education: A study of 15-16-year-olds in the north-west of England and north-east of Wales, *European Physical Education Review*, 13(3), 339-368.

Sport England (2003) *Young People and Sport in England. Trends in Participation 1994-2002* (London, Sport England).

Telama, R., Laakso, L. & Yang, X. (1994) Physical activity and participation in sports of young people in Finland, *Scandinavian Journal of Medicine and Science in Sport*, 4(1), 65-74.

Telama, R., Nupponen, H. & Pieron, M. (2005) Physical activity among young people in the context of lifestyle, *European Physical Education Review*, 11(2), 115-137.

Telama, R., Naul, R., Nupponen, H., Rychtecky, A. & Vuolle, P. (2002) *Physical Fitness, Sporting Lifestyles and Olympic Ideals: Cross-Cultural Studies on Youth and Sport in Europe* (Schorndorf, Verlag Karl Hofmann).

Theokas, C. (2009) 'Youth sport participation—a view of the issues: Introduction to the special section', *Developmental Psychology*, 45(2): 303-306.

Trudeau, F. & Shephard, R.J. (2005) Contribution of school programmes to physical activity levels and attitudes in children and adults, *Sports Medicine*, 35(2), 89-105.

Trudeau, F. & Shephard, R.J. (2008) Is there a long-term health legacy of required physical education? *Sports Medicine*, 38(4), 265-270.

Vaage, O.F. (2009) *Mosjon, Friluftsliv og Kulturaktiviteter. Resultater fra Levekarsundersøkelsene fra 1997-2007. Rapport 2009/15* (Oslo-Kongsvinger, Statistisk Sentralbyrå).

Van Bottenburg, M. Rijnen, B. & Sterkenburg, J. (2005) *Sport participation in the European Union: Trends and differences* (Mulier Institute).

Xu, F., Chepyator-Thomson, J., Liu, J. and Schmidlein, R. (2010) Association between social, environment factors and physical activity opportunities in middle schools, *European Physical Education Review*, 16(2), 183-194

Zuzanek, J. (2005) Adolescent time use and well-being from a comparative perspective, *Loisir & Societe*, 28(2), 379-423.