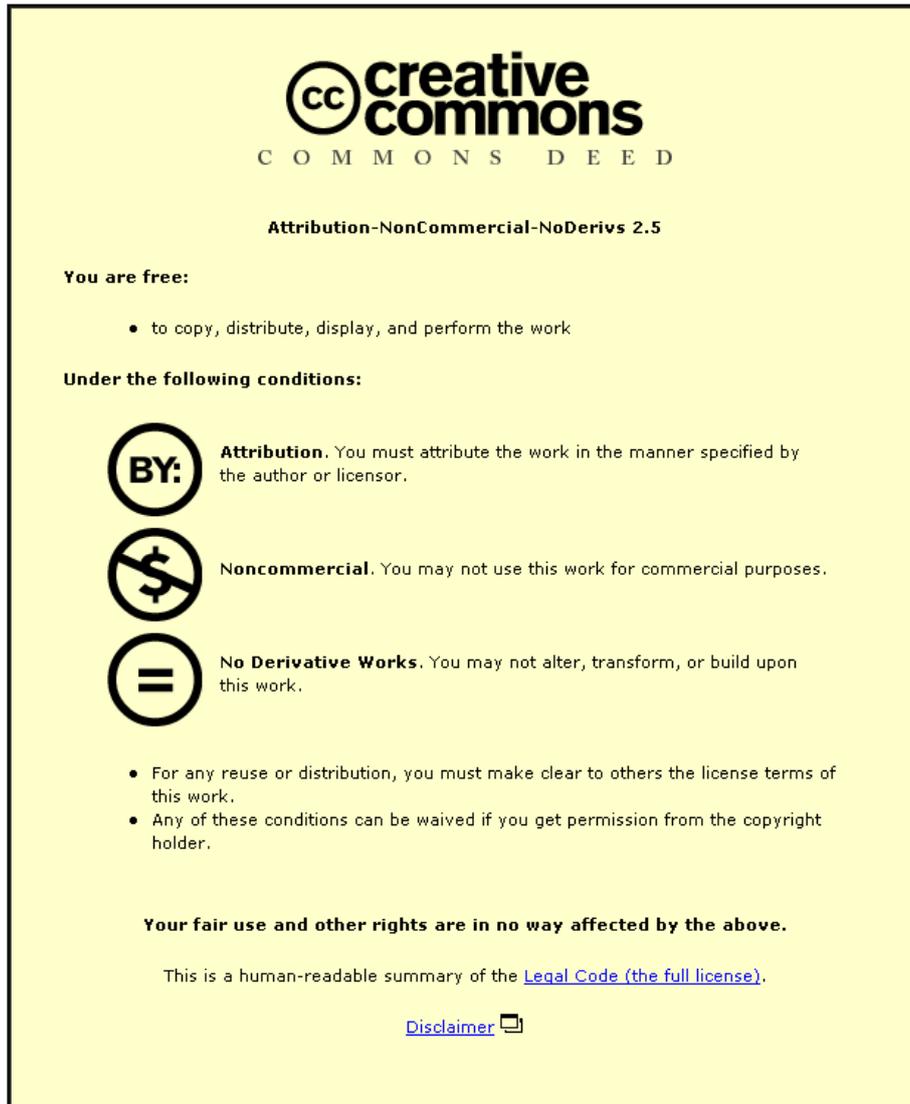


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'Every Child, (of Every Size), Matters' in Physical Education!

Physical Education's Role in Childhood Obesity

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Abstract

The role of schools and physical education in promoting health, producing a 'healthy nation', and in tackling obesity has been increasingly recognized in recent years. In England this is evidenced by various policies, strategies and responses from government which have highlighted schools to be instrumental in addressing both health broadly, and obesity specifically. In addition, individual schools and teachers at local level appear to be responding to the obesity issue in varied and different ways. However, we and other researchers feel that the discourse surrounding obesity and some of the reports, messages, policies and measures being taken to tackle it are misleading, misguided and could do more harm than good. At the same time, as physical educators committed to the health and development of young people, we feel unable to ignore the issue and compelled to act. We contend that 'every child of every size matters' and can benefit from regular engagement in physical education and physical activity and furthermore that, as a profession, we have a responsibility to provide all young people, of all sizes, with meaningful, relevant and positive physical education and physical activity experiences. Given this, we consider what role physical education can and should realistically, sensibly, and safely play in addressing childhood overweight and obesity. Firstly, some of the key 'facts', issues and debates concerning obesity are explored and the way in which the issue appears to be being addressed in many schools is critiqued. We then briefly summarise some of the formal guidance and recommendations available to schools on obesity, before concluding with some practical recommendations to support physical education teachers in effectively engaging all children in physical activity both within and beyond physical education.

Keywords: physical education; physical activity; childhood obesity; recommendations

Introduction

We are bombarded almost daily with government, scientific or media reports and messages concerning the growing 'problem' of childhood obesity and the possible consequences of this for children's current and future health. The World Health Organization (WHO) (2011) claims that childhood obesity is one of the most serious public health challenges of the 21st century, reporting the problem to be global and increasing at an alarming rate

(<http://www.who.int/dietphysicalactivity/childhood/en/index.html>). Indeed, it has been reported that we are in a global obesity crisis (House of Commons, 2004).

Perhaps not surprisingly therefore, the role of schools and physical education in promoting health, producing a 'healthy nation' (Shephard & Trudeau, 2000; Cale & Harris, 2005; Johns, 2005; Stratton, Fairclough & Ridgers, 2008; Webb, Quennerstedt & Öhman, 2008) and in tackling obesity (Fox, Cooper & McKenna, 2004; Kirk, 2006; Barlow & the Expert Committee, 2007; Davidson, 2007; Zieff & Veri, 2009) has been increasingly recognized in recent years. Physical education specifically has been viewed as the most suitable vehicle for the promotion of healthy, active lifestyles among young people (e.g. Cardon and Bourdeaudhuij, 2002; Shephard and Trudeau, 2000) and contributing to public health via promoting health-enhancing lifestyles and increasing physical activity is seen to be one, if not the most important objectives of the subject (e.g. Shephard and Trudeau; 2000; Green, 2002; Fox, Cooper & McKenna, 2004; Fairclough & Stratton, 2005). In

England this is evidenced by various policies, strategies and responses from government which have highlighted schools to be instrumental in addressing both health broadly, and obesity specifically. With regards to obesity for example, the previous government's health strategy 'Choosing Health' (Department of Health, 2004a) highlighted 'reducing obesity and improving diet and nutrition' as one of its priorities, noting how action would take place in schools, communities and workplaces. Also in 2004, a Public Service Agreement Target (PSA) was established to 'halt by 2010, the year on year increase in obesity among children aged under 11'. In association with this, the National Child Measurement Programme was introduced which involves measuring children's weight in reception (ages 4-5 years) and year 6 (10-11 years of age). Following on, 'Healthy Weight, Healthy Lives' was published (Department of Health and Department for Children, Schools and Families, 2008), which set out the ambition to be the first major nation to reverse the 'rising tide' of obesity and overweight in the population, the initial focus of which was on children.

The current government's White Paper 'Healthy Lives, Healthy People' (Department of Health, 2010) which outlines the current strategy for public health in England also highlights the importance of schools and physical education in the promotion of health. It announces that the National Child Measurement Programme will continue to run, providing local areas with information about levels of overweight and obesity in children to inform planning and commissioning of local services. Further, it pledges to bring together a group of experts to identify non-legislative solutions to tackling low levels of body confidence and to take account of their views when developing policy.

In addition to government policies and associated strategies at national level, it seems that locally individual schools and teachers, in the well-meaning desire to make a difference and/or in recognition of the expectations being placed upon them, are responding to the issue in varied and different ways. Whilst we do not wish to contest or trivialise childhood obesity as a serious health concern, we and others (e.g. Gard & Wright, 2001; Evans, Rich & Davies 2004; Evans et al., 2008) feel that the discourse surrounding the issue and some of the reports, messages, policies and measures being taken to tackle obesity, including in schools, are misleading, misguided and could do more harm than good. An overview of the concerns and of some of the worrying measures is offered later.

As a result, and as physical educators committed to the health and development of young people, we too feel unable to ignore the issue and compelled to act. Our reasons for this are quite simple. It seems to us that the concerns over and attention afforded to childhood obesity are certainly not going to go away, indeed, they are likely to heighten, and therefore the expectations on schools and physical education to address the issue are only likely to increase. We firmly believe that 'every child of every size matters', and can benefit from regular engagement in physical education and physical activity. Thus, wishing to avoid more harm being done than good, and critical of some of the policies, initiatives and practices that have been employed to date, we consider here what role physical education can and should realistically, sensibly, and safely play in addressing childhood overweight and obesity. Firstly, we attempt to provide a broad and balanced overview of the topic by exploring some of the key 'facts', issues and debates

concerning obesity as, only by understanding the issue can physical educators hope to be able to appropriately and effectively address it. We then briefly summarise some of the formal guidance and recommendations available to schools on obesity, before concluding with some practical recommendations for physical education practice.

The scale of the issue

Obesity refers to an excess of body fat and is a recognized clinical health condition. The condition should be, though is not always distinguished from overweight which refers to weight in excess of some standard. The most commonly used measure for obesity is the Body Mass Index (BMI) which is determined by an individual's weight (kg) divided by their height squared (m^2). The WHO (2011) defines overweight as a BMI equal to or more than 25 and obesity as a BMI equal to or more than 30 (<http://www.who.int/mediacentre/factsheets/fs311/en/>).

The most recent obesity figures in the United Kingdom (UK) are derived from the Health Survey for England (2007). The survey reports approximately three in ten boys and girls aged 2-15 to be either overweight or obese (31% and 29% respectively) and a rise in obesity levels since 1995 in both sexes (from 11% to 17% for boys and from 12% to 16% for girls) (Craig & Shelton, 2008). Work by the Government Office for Science's Foresight programme estimates that these figures will continue to rise and that two thirds of children will be overweight or obese, and a quarter will be obese by 2050 (Butland et al., 2007).

However, it is important to recognise the limitations in the above data and reporting and to therefore view these 'facts' with some caution. A number of researchers (e.g. Evans, 2003; Evans, Rich & Davies, 2004; Gard, 2004a; Campos et al., 2006; Marsh, 2006; Evans et al., 2008; Evans & Rich, 2011) have questioned or refuted reported obesity figures and predictions, claiming that they are exaggerated, sensationalized, misreported and even meaningless and shallow. For example, based on an analysis of data for the period 1995 to 2004, Marsh (2006) reported no statistically significant increase in average BMI for boys aged 5-15 and a generally similar picture for girls. This led him to question the UK standard cut off points for obesity that were used to arrive at these figures, the obesity debate more broadly, and the possible consequences of inappropriate responses based on the associated hype and obsession with weight. Gard (2004a) expressed similar reservations noting how statistics (like all forms of data) can be used and abused to tell whatever tale we care to tell.

Another limitation is that the figures for overweightness are often included with or cited alongside the obesity figures. As acknowledged by Evans, Rich & Davies (2004), failure to make the distinction between the two in this way artificially inflates the statistics and therefore confuses and distorts the picture. They explain 'overweight joins obesity (to swell numbers, we guess) and add weight (sic) to the problem espoused' (p. 379). Indeed, the WHO (2011) refers to overweight and obesity as though they are synonymous offering the same definition for both, and discussing both the figures and health consequences of overweight and obesity collectively and without distinction.

In addition, are limitations in using BMI as a measure of obesity. This measure is acknowledged to be 'crude', thoroughly imprecise, and a poor measure for children and adolescents in particular (Evans, 2003; Evans, Rich & Davies, 2004; Evans et al., 2008). As BMI is based on weight and height, it does not discriminate between fat and fat free (or lean) mass which can lead to the misclassification of some individuals (e.g. those who are muscular, well toned or athletic). As noted earlier, there are also issues with regards to the lack of standardisation over the classification of obesity and the cut off points used, making comparison of data concerning childhood obesity around the world difficult (Seidell, 2000). Further, Evans, Rich & Davies (2004) point out that even when a threshold has been set for defining the point at which 'weight' becomes 'over', it is another thing entirely to then claim that this condition is a causally related problem for a person's health. Indeed, based on extensive research over a number of years, Steven Blair, a leading exercise physiologist and epidemiologist in the United States has been highly critical of those he refers to as the 'obesity mafia', i.e., the health professionals who claim that being fat will lead to serious health problems. Research by Blair and colleagues (see for e.g. Blair & Nichaman, 2002; Blair & LaMonte, 2006; Blair 2009) has revealed physical inactivity and low physical fitness to be more problematic to health than obesity and he consequently feels the public are being misled by the constant attention given to the latter at the expense of the former. The President's Council on Physical Fitness and Sports (2000) similarly recognizes this noting how the health risks of obesity are largely controlled if a person is physically active and physically fit.

Interestingly, there is little mention in official reports or by the media of any of the above methodological limitations, ambiguities or uncertainties in the data, or of any

questioning or scepticism over the relative importance of obesity to health. Clearly though, it is important to be critical and cautiously aware of these and of the powerful influence of the resulting 'flawed' data and its interpretation on policy and practice at national, local and school and individual teacher level.

Associated health problems

Despite the above, childhood obesity is inevitably of concern and it is generally accepted that it can have serious implications for the current and future health of a significant number of young people. There is also research evidence to support this. Short-term effects of childhood obesity are reported to include medical morbidity, complications or problems, as well as social and psychological problems (Denney-Wilson & Baur, 2007). For example, obese children can face orthopaedic problems (Shephard, 2005; Barlow & the Expert Committee, 2007) (e.g. poor posture, 'knock' knees, flat feet, back pain, ankle sprains, fractures), an increased incidence of left ventricular hypertrophy, respiratory problems or pulmonary disorders (e.g. poor exercise tolerance, asthma, sleep apnoea), gastrointestinal problems such as gallstones, as well as hormonal disturbances (Hauner, 2004; Barlow & the Expert Committee, 2007).

With regards to social and psychological problems, many obese children are reported to have to deal with negative stereotypes, peer rejection, teasing and discrimination and thereby develop a negative self-image, low self-esteem and even depression (Dietz, 1998; Latner & Stunkard, 2003; Lobstein, Baur & Uauy, 2004; Department of Health, 2004b). Indeed, the stigmatisation of overweight and obesity appears to be increasing (Latner & Stunkard, 2003; Lawrence, 2010).

In terms of long-term effects, studies have indicated that obese children have an increased risk of cardiovascular risk factors, respiratory co-morbidities and of developing type 2 diabetes (Reilly, 2005; Barlow & The Expert Committee, 2007; Denney-Wilson & Baur, 2007). Furthermore, research suggests that obesity tracks from childhood to adulthood (Chin et al., 2007), with figures suggesting that around 40-60% of obese school-age children become obese adults (Department of Health, 2004b).

Factors contributing to obesity

Obesity is fundamentally seen to be a result of energy imbalance (Weinsier et al., 1998; Wells, 1998; BHF, 2009). Quite simply, individuals gain excess weight when energy intake exceeds energy expenditure. Genetics have been widely purported to be a cause of this imbalance and are reported to make some individuals more susceptible to obesity than others. However, genetics alone are not sufficient to cause obesity (Maffeis, 2000; Barlow & the Expert Committee, 2007) and other determinants are considered to also play a part. Obesity is more likely a result of behavioural (i.e. changes in physical activity, diet and eating patterns) and environmental factors (e.g. access to physical activity opportunities, increased availability and affordability of certain types of food) (Yeung & Hills, 2007).

With regards to physical activity behaviour, there is evidence that physical activity among youth has declined in recent decades (Yeung & Hills, 2007) and that the corresponding increases in obesity may be the direct result of this (Luepker, 1999). Indeed, physical inactivity and sedentary behaviour in youth have been implicated as

an important cause of early onset obesity (Goran, Reynolds & Lindquist, 1999; Boreham & Riddoch, 2001). There is also some indirect evidence from children's changing lifestyle and travel patterns that their activity has decreased over the years. Young people are now spending increasing amounts of time in sedentary pursuits such as watching TV, playing computer and video games and social networking, and active transport (i.e. walking and cycling) particularly to and from school has decreased in the last three decades (BHF, 2009).

In addition, due to ever increasing concerns over safety, parents have increasingly restricted their children's independent mobility (Jones, Davis & Evers, 2000) and their opportunities to roam and play independently has dropped considerably (Spilsbury, 2005; Hilman, 2006; Karsten & van Vliet, 2006; Veitch et al., 2006). Technological advances are also blamed for the increased amount of time young people are spending in sedentary activities. Interestingly however, whilst some studies have found an association between sedentary behaviours such as TV viewing and body fat and BMI (e.g. Proctor et al., 2003; Jago et al., 2005; Janz, Burns & Levy, 2005), suggesting the influence of lifestyle and physical activity in weight management, others have not and certainly for TV, the relationship has been found to be small (Marshall, Gorley & Biddle, 2004; BHF, 2009). Thus, more research is needed in the area.

In terms of diet, evidence from national (e.g. the National Diet and Nutrition Survey (Food Standards Agency, 2000)) and other surveys show that a high proportion of children aged 7-14 do not meet national recommended guidelines for healthy eating.

For example, young people's diets have been found to be too high in saturated fats, salt and sugar and most still do not eat enough fruit and vegetables (BHF, 2009).

On the issue of environmental influences, the term 'obesogenic' has been used to describe our current environment which promotes high energy intake and low energy expenditure (Yeung & Hills, 2007). Indeed, it has been suggested it is hard to envision an environment more effective in producing obesity (Battle & Brownell, 1996). Some examples of the way in which our environment restricts energy expenditure have already been highlighted above but with reference to food consumption and energy intake, Davey (2004) identifies a variety of factors which have helped to contribute to obesity. These include policies relating to food production, advertising, promotion, pricing and the availability of 'fast food' or high sugar foods, with 'king size' portion sizes and the widespread sale of pre-packaged, ready to eat snack foods being cited as specific examples.

The role of schools and physical education in addressing obesity

The aims and purposes of physical education have and continue to be widely debated and contested (see for e.g. Penney & Chandler, 2000; Kirk, 2010 for more recent summaries of these). Purposes that have been cited for physical education relate to outcomes concerned with physical and social skills, moral values, spirituality, intellectual ability, health (including obesity), fitness or recreation. Whilst it is not within the scope of this paper to visit this debate here, of importance is to clarify our view with regards to physical education's contribution to obesity. Whilst we believe that physical education has 'a' role to play in addressing the issue, we do not believe addressing obesity to be the, or even an, appropriate purpose or

rationale for physical education. Others would seem to concur with this view. For example, Evans, Davies & Rich (2004, p. 386) suggest that 'physical education has no more capacity or responsibility to make children... eat well and be thin than have math teachers the capacity or responsibility to make pupils multimillionaires', whilst Gard & Wright (2001, p. 537) are critical of how physical education 'legitimizes itself on the basis of claims about obesity and overweight'. However, and as they acknowledge, neither the relationship between health and physical activity in the context of physical education nor that physical activity should be integral to physical education can be denied (Gard & Wright, 2001). Thus, given physical education involves all young people, of all sizes, in regular physical activity (resulting in increased energy expenditure and potentially in health benefits) and provides opportunities for them to acquire and develop the skills and knowledge required to be physically active, it seems only logical for it to play a part in addressing obesity.

Indeed, a number of reasons have been cited as to why schools and physical education have been increasingly recognised as having a role to play in addressing obesity. Most of the target population attend school, and school-based approaches can be cost effective and avoid the potential stigmatisation of obese children (Davidson, 2007). There is also some evidence to support the effectiveness of school-based interventions in the prevention of childhood obesity. For example, a review of 25 school-based overweight/obesity prevention programmes which intervened on diet or activity-related behaviours revealed the majority (68%) to be effective (Doak et al., 2006). Furthermore, the review cited physical education and reduced television viewing as two specific examples of successful interventions.

Of course, it is also important to be realistic about what physical education can achieve given the range of purposes it has been claimed to have and that it accounts for only a small proportion of young people's time. In reality, physical education rarely takes up more than 1% of a child's waking time (Fox, 2004) and at least half of this might justifiably involve only light or physically passive activity (Stratton, Fairclough & Ridgers, 2008). Thus, PE clearly cannot by itself address the physical activity needs of young people (Fox, Cooper & McKenna, 2004) nor cannot or should not be held responsible for reducing obesity. Rather, its role should be to stimulate interest, enjoyment, knowledge, understanding, competence and confidence in physical activity and sport for health and well-being.

Equally, it should be acknowledged that when considering the role of schools and physical education in addressing obesity, a number of researchers have expressed grave concerns regarding government policies on health education and schools' and physical education's uncritically accepted role within it (and weight management), and over the dominance and effects of health and obesity discourses on health education and physical education in schools (e.g. Evans, 2003; Gard, 2004b; Gard & Wright, 2005; Kirk, 2006; Evans, 2007; Evans, Rich & Davies; 2004; Wright & Dean, 2007; Evans et al., 2008; Evans & Rich, 2011). Given the breadth of this paper it is not possible to explore these concerns in detail here, and indeed they are documented fully elsewhere, but they are clearly important to recognise and to briefly summarise. These researchers highlight how such policies increasingly bear features of a 'performative' culture celebrating comparison, measurement, assessment and accountability while focusing attention on the manifest aspects of 'corporeal perfection' (usually defined as the 'slender ideal') (Evans, 2007).

Furthermore, they note how such discourses express what are described as 'body perfection codes' - that is structures of meaning defining what the body in size, shape predisposition and demeanour is and ought to be - and how, if it does not meet these ideals, it should be treated, repaired and restored (Evans, 2007).

The concern is how this increasingly performative culture and health and obesity discourses are then expressed in the curriculum and pedagogies of health and physical and health education, and in the perspectives of teachers and children in schools (see Burrows & Wright, 2004; Evans, Davies & Wright, 2004; Evans Rich & Davies, 2004; Evans et al., 2008; Evans & Rich, 2011). Indeed, it has been suggested that as a result, schools are pressed to engage in health issues simplistically and narrowly, in terms of weight management, rather than encouraging a more complex holistic outlook on and attitude towards health (Evans, 2007), and to engage in and promote practices which are potentially harmful to the health of young people (Evans, Rich & Davies, 2004; Wright & Dean, 2007; Evans et al., 2008). Examples of such practices and why specifically they are considered problematic are outlined in the next section.

Inappropriate responses to obesity

One of the most important principles of modern medicine and prevention science is to 'First, do no harm' (O'Dea, 2005, p.259). However, it seems that this principle is not heeded in practice where childhood obesity is concerned in that that some of the measures being taken to tackle the issue are considered inappropriate and may well be doing harm. Furthermore, not only is the list of such practices thought to be extensive (Wright & Dean, 2007) but it is suggested that some of the actions

being taken would not be considered permissible or 'just' in other social contexts (Burrows & Wright, 2004; Evans, 2007).

The measures include various mechanisms of surveillance which involve not only monitoring children's lifestyles in and outside school but also the collection of information on children's bodies (Rich, 2010). Examples that are cited in the literature include weighing and measuring children, inspecting children's lunch boxes, fingerprint monitoring, issuing health report cards, fitness testing regimes, and fat laps, fat clubs, and fat camps for overweight or obese students (Wright & Dean, 2007; Evans et al., 2008; Cale & Harris, 2009; Rich, 2010). Indeed, Gard & Wright (2001) note how some of these, such as body weighing and fitness testing remain standard features of physical education practice.

Such practices which are limited to and driven by the unreflective rhetoric of health and obesity discourses have been criticised generally on a number of grounds. For example, in that they encourage and promote 'unprecedented levels of surveillance of young people' (Evans, 2007, p.13), represent practices of 'humiliation, disregard and disrespect' (Wright & Dean, 2007, p. 79) and 'give permission on a daily basis for ridicule and harassment' (Gard & Wright, 2001, p. 546). Thus, they potentially stigmatise overweight and obese children (O'Dea, 2005), and perpetuate current and growing biases and prejudicial beliefs concerning the overweight and obese, namely that they are weak willed, gluttonous, lazy, ugly, awkward, bad, stupid and worthless (Young & Powell, 1985; Schwartz et al., 2003). According to Evans (2003), such practices furthermore lead success and achievement in physical education to be defined not in terms of knowledge, understandings and competence but rather of

body shape, size and weight. The underlying assumptions being made and the messages being promoted would seem to be that thin = healthy and good, whereas fat = unhealthy and bad. Gard & Wright (2001) similarly note how in its practice physical education supports the triplex that: exercise = fitness = health (where health is determined by body size and shape) and is embedded in a discourse of 'healthism' which constitutes health in terms of a moral imperative of self-control (Gard & Wright, 2001). According to O'Dea (2005) however, such individually focused victim blaming approaches are likely to result in nothing more than the apportioning of blame, guilt, shame and hopelessness on fat children. Indeed, studies (e.g. Chambliss, Finley & Blair, 2004; O'Brien, Hunter & Banks, 2007) have found that exercise science students and physical educators display strong implicit 'anti fat' biases and negative prejudice toward obese individuals, whilst O'Dea (2005) claims that often overweight children are inadvertently discriminated against by being excluded from general participation in certain physical activities such as school games and sports teams.

If we focus on the practice of weighing and measuring as just one example, not only is this likely to be embarrassing and humiliating for many young people, but it is not necessary to measure an obese child, or indeed any individual for that matter, to tell them something that they already know, and more importantly, no child needs to be measured to be helped to enjoy being physically active (Cale & Harris, 2009). O'Dea (2005) suggests that the last thing obese children want a reminder of is their undesirable weight status. Such a practice (alongside some of the others cited earlier) and the responses it typically invokes, such as a pre-occupation with one's weight, body and diet, may only serve to contribute a mental health problem to a

physical health issue and we need to seriously consider the potential damage it can do to a young person's self-esteem, body image and psychological health.

Consequently, Wright & Dean (2007) warn how such practices do not have happy consequences for young women in particular and similarly Evans (2007) warns how the teaching of health education in schools, if centred on diet and weight concerns, can have a damaging impact on the attitudes and relationships children form towards food and health. Not surprisingly therefore, concerns have been raised by these as well as other authors over the potential contribution physical education makes to disordered eating (Hasle, Honey & Boughtwood, 2007; Rich, 2010).

Indeed, research carried out on the lives of girls and young women with anorexia or bulimia (Evans, Rich & Davies, 2004; Evans, Rich & Holroyd, 2004) has highlighted how health education policy and discourse around weight management can seriously damage the health of some young women. Evidence furthermore suggests that the problem extends to many more young people. For example, the WHO's Health Behaviour in School Aged Children Survey (2005/06) (Currie et al., 2008) revealed many young people and particularly girls to be unhappy about and attempt to control their weight, whilst Orbach (2006) drew attention to the huge body dissatisfaction and pre-occupation with body size amongst many women and girls who were not in any sense overweight, suggesting that today we are more 'fat in the mind' than 'fat in the body' (p. 23). These findings highlight the need for a critical, cautious and sensitive approach to the issue, to avoid triggering body disaffection among young people (especially girls), the development of harmful relationships with food (and physical activity), and even serious eating disorders, the latter of which are serious and growing problems. In the United Kingdom for example, the Eating Disorders

Association notes how prevalence figures suggest that the combined total for people diagnosed and undiagnosed with an eating disorder is 1.15 million (<http://www.b-eat.co.uk/ProfessionalStudentResources/Studentinformation-1/SomeStatistics>).

Given the 'facts', issues, debates and practices explored here, the question to which we must now turn is how then, can and should, physical education address childhood obesity? Clearly, the whole issue is a complex and sensitive one and we do not wish to imply otherwise. A worry however, is that many physical educators may be, or become, so confused by what they see, hear and read on the issue, or afraid of 'getting it wrong', that they fail to do anything at all. This in itself could also be harmful. Confusion or uncertainty do not absolve us of our responsibility to provide all young people, of all sizes, with meaningful, relevant and positive physical education and physical activity experiences. Overemphasis on what is inappropriate and what we should not be doing, at the expense of focusing on what is appropriate and we can and should be doing, is not especially helpful to teachers who encounter and need to cater for the needs of obese children in their classes on a daily basis. Whilst there are methodological and other limitations in the data and reporting, and a cautious and critical approach is essential, what nevertheless has been deduced is that a significant number of young people are obese, that the numbers are increasing, and that these youngsters are susceptible to some potentially serious physical and mental health problems. Thus, if we are truly committed to 'every child of every size', then we need to consider what role physical education can and should realistically play in addressing obesity, and how the issue can be approached appropriately, sensibly and safely.

Physical activity and obese children

Recent comprehensive reviews of the health benefits of physical activity for children and young people have revealed evidence that physical activity can lead to better cardiovascular and metabolic health, improved cardiorespiratory endurance and muscular fitness, improved skeletal health and more favourable body fat composition, as well as some evidence for psychological benefits such as reduced symptoms of anxiety and depression (National Institute of Clinical Excellence (NICE), 2007; US Department of Health and Human Services, 2008). Some of these benefits in particular (e.g. better metabolic health, more favourable body fat composition, enhanced psychological health) are clearly very important and relevant to obese children. Yet, the physical and psychological complications or problems many obese children may face makes participating in physical activity more difficult for them, which in turn can result in an aversion to physical activity and sport participation (Gortmaker et al., 1993; Schwimmer, Burwinkle & Varni, 2003). In the longer term, this aversion can become a vicious cycle of inactivity.

Thus, there are important health reasons for trying to engage obese children in physical activity, including physical education. Whilst we would argue that the same general messages, advice and principles with regards to engaging ALL children in physical activity equally apply, additionally there are some specific practical considerations and sensitivities to be aware of which are likely to affect obese children's ability to perform physical activity, their enjoyment and attitude towards it, and thus the approach with these youngsters. These have been documented elsewhere (see Cale & Harris, 2009), but in summary relate to the orthopaedic problems obese children may encounter, their generally lower tolerance to exercise,

poorer movement efficiency and body management, lower self-esteem/confidence, and their self-consciousness/embarrassment and sense of isolation. With regards to the latter, studies (e.g. Shaw & Kemeny, 1989; O'Dea, 2003) have identified body consciousness as well as lack of privacy in changing rooms and physically revealing sports uniforms as major barriers to physical activity for the overweight/obese, and particularly girls.

All of these present challenges for obese youngsters when participating in physical activity and have practical implications for physical education policy and practice. Physical education teachers need to understand, be sensitive to, and address the challenges to ensure that obese children can engage fully and safely in meaningful and enjoyable physical activity.

Guidance and recommendations

Prior to considering practical recommendations for physical education teachers for addressing childhood obesity, it is important to acknowledge that formal guidance and recommendations for schools have been produced on obesity relatively recently in the UK by NICE and the Department of Health. A brief summary of this guidance is presented in table I.

INSERT TABLE I HERE

Practical Recommendations

Provided the same critical attitude is adopted to the formal guidance and to the assumptions and recommendations it makes, then it is welcomed and gives a

useful steer. However, it fails to inform practice at the very practical level in terms of how physical education teachers can, on a daily basis, address and respond to the issue, promote the right messages, and effectively engage ‘every child of every size’, in physical activity both within and beyond physical education. The following therefore represent general and activity recommendations which aim to support teachers to do just this (see tables II and III respectively).

INSERT TABLES II AND III HERE

The recommendations take into account the considerations and sensitivities just outlined by ourselves and other researchers. They also draw on the formal guidance summarised in table I, recommendations from previous literature (e.g. Evans, Rich & Davies, 2004; O’Dea, 2005; Evans, 2007; Evans et al., 2008), plus those emanating from a specialist seminar on ‘Physical Education and Childhood Obesity’ organized by the Association for Physical Education (afPE) in 2007 and which have since been developed and published elsewhere (Cale & Harris, 2009). The general recommendations are broadly concerned with the key principles, messages, attitudes, beliefs, values and philosophy teachers should strive to adopt in their approach to health, health education and health promotion with all young people. The practical recommendations, meanwhile, focus on specific physical education policies, procedures, practices and physical activities which are viewed to be appropriate and conducive to the engagement of obese children in particular, in physical activity. That said, and whilst earlier we were critical of literature failing to make the distinction between overweight and obese children (e.g. in the reporting of obesity figures), in the context of physical activity promotion it should be noted that a

number of the considerations and sensitivities, and thus the practical recommendations, may also apply to overweight youngsters. Equally though, Cale & Harris (2009) acknowledge how obese, or any children for that matter, are not a homogenous group and thereby highlight the importance of considering the physical, psychological and social characteristics of each individual in applying the recommendations.

Conclusion

In this paper we have attempted to provide an overview of some of the key 'facts', issues, debates and concerns surrounding obesity, and critique the way in which the issue, driven by government policies, strategies and responses, appears to be being addressed in many schools. Whilst the complexity and sensitivity of the issue is acknowledged, it is contended that 'every child of every size matters' and can benefit from regular engagement in physical education and physical activity, and therefore as a profession we have a responsibility to provide this and to ensure that the experiences we offer are meaningful, relevant and positive. In this respect, the paper summarises some of the formal guidance that is available on obesity before concluding with some practical recommendations to support physical education teachers in effectively engaging all children in physical activity both within and beyond physical education.

Table I. Formal Obesity Guidance and Recommendations for Schools

The National Institute for Clinical Excellence Guidance (NICE) (2006) (on the prevention and management of obesity in adults and children)	Department of Health (DoH) Obesity Guidance (2007) (for healthy schools co-ordinators and their partners)
NICE recommends assessment of the whole school environment and policies to ensure they help children and young people maintain a healthy weight, eat a healthy diet and be physically active. Suggested targets and actions include:	The guidance identifies the following five areas on which to concentrate efforts:
<p>School policies and school environment Ensure school policies and the school's environment encourages physical activity and a healthy diet. Consider:</p> <ul style="list-style-type: none"> • Building layout • Provision of recreational spaces • Catering, including vending machines • Food brought into school by the children • The curriculum, including physical education • School travel plans, including provision for cycling • Extended schools. <p>Staff training Teaching, support and catering staff should have training on how to implement healthy school policies.</p> <p>Links with relevant organisations and professionals Establish links with health professionals and those involved in local strategies and partnerships to promote sports for children and young people.</p> <p>Interventions</p> <ul style="list-style-type: none"> • Introduce sustained interventions to encourage pupils to develop life-long healthy habits. • Take pupils' views into account, and barriers such as cost or concerns about the taste of healthy food. • Physical education staff should promote activities that children enjoy and can take part in outside school and continue into adulthood. • Children should eat meals in a pleasant sociable environment free from distractions. • Involve parents where possible, for example, through special events, newsletters and information about lunch menus. 	<p>1. Ensuring language and core messages are appropriate E.g. stressing the importance of a balanced diet rather than 'good' foods and 'bad' foods; that a healthy diet and physical activity is important; that physical activity is not only about sport; stressing the positive, e.g. 'be healthy', 'get active', 'feel better'.</p> <p>2. Achieving healthy school status As the core first step in obesity prevention; adopting a whole school approach which recognizes all four themes (healthy eating, physical activity, emotional health and well-being and Personal Social and Health Education).</p> <p>3. Ensuring universal prevention E.g. adopting a school food policy; offering an engaging PE curriculum and a wide variety of extra-curricular activities; developing opportunities for building physical literacy and personal safety skills (e.g. pedestrian safety, cycling).</p> <p>4. Engaging parents/carers E.g. engaging parents/carers in changes to school food; encouraging them to make changes at home; helping families understand about healthy eating and physical activity; encouraging parents/carers to be involved in physical activities with their children; arranging activities for parents/carers and their children to do together (e.g. vegetable growing clubs, cooking clubs, sports afternoons), organizing family events.</p> <p>5. Exploring additional opportunities for the obese/overweight Involving external providers in obesity, nutrition and/or physical activity interventions.</p>

Table II. General Recommendations for Physical Education Teachers for Addressing Childhood Obesity

General Recommendations
<p>Adopt a critical attitude towards health and obesity discourses and question what you hear and read about obesity, weight, diet and physical activity and encourage young people to do likewise. Remember that much of the research is conflicting and there is plenty of uncertainty surrounding the issues.</p>
<p>Adopt a broad and holistic approach to health, health education and promotion. Recognise the importance of all dimensions of health rather than allow weight and weight status to dominate.</p>
<p>Examine your own attitudes, beliefs, values and prejudices concerning the overweight/obese and seriously and honestly question any biases, the foundations on which these are based, and the influence they may have on your practice (e.g. in terms of the information and messages you give). Avoid transmitting weightist prejudices but rather try to counteract and challenge them, including any shown by others.</p>
<p>Carefully consider the health information and messages you give, the validity of these, how they may be received, interpreted and made sense of, and how they may make young people feel about themselves and their bodies.</p>
<p>Avoid sensationalizing 'obesity' or 'weight' and adopt a sensitive, caring approach in which you focus on inclusion and learning through physical activity to try to enable all young people to engage, enjoy and achieve within the physical activity and physical education context.</p>
<p>Avoid focusing on 'weight' as a problem. Outside of the extremes (of thinness and fatness), people can be healthy at any weight if they engage in moderate amounts of physical activity and have a healthy diet. Adopt and promote the view, health at any size and the message that 'it is better (and healthier) to be in shape than to be a particular shape'.</p>
<p>Carefully consider the judgments and comments you make about food. Avoid generating unhelpful dualism around food types (e.g. chips = bad; celery = good) but instead focus on quality and moderation. Also, avoid criticising or ridiculing the food young people eat as this can damage the relationships they (and others who make it) have with food. As well as for health, recognise that food is an important part of one's culture and that people eat for fun, pleasure and social reasons.</p>
<p>Physically educate young people about their bodies. Help them to understand that bodies change and are not fixed (i.e. as during puberty). Also help them to understand how the body responds to friendly treatment (i.e. the benefits of physical activity and a healthy diet).</p>
<p>Help all young people, regardless of their size or weight, to feel good about their bodies in order to build their competence, confidence and sense of control. Promote the message 'learn to like your body' and help them to see the body not as the enemy but as part of the whole person.</p>
<p>Help obese youngsters to learn to understand and deal with their individuality, strengths and weaknesses and to be proud of who they are and what they have. Promote the message 'celebrate being special'.</p>
<p>Provide young people with specific guidance about the importance of physical activity, its contribution to healthy weight management, and how to go about</p>

becoming more active.

Identify young people with low activity levels and provide them with personalized guidance and encouragement to achieve manageable physical activity targets.

Encourage your department and physical education colleagues to work alongside other subject staff (e.g. those from personal, social and health education, science, food technology) to ensure that consistent messages are promoted about the contribution of physical activity to healthy weight management.

Consider how 'obesogenic' or physical activity promoting, the school and physical education environments are. Focus efforts on making the environment more conducive to physical activity.

Table III. Practical Recommendations for Physical Education Teachers for Addressing Childhood Obesity

Activity Recommendations
<p>Consider kit/clothing and changing/showering polices and procedures. Be sensitive as to how obese children are likely to feel about what they wear and undressing in front of others and be flexible and accommodating where possible. For example, try to provide private changing facilities and allow children to wear tracksuit bottoms and, for swimming, T-shirts.</p>
<p>Encourage obese children to adopt and maintain regular physical activity, including participation in physical education, even if weight loss is slow or does not occur. They will still derive physical and mental health benefits from the activity.</p>
<p>Most obese children will know their capabilities and limitations where participating in physical activity is concerned. Some are also often quite skilled (e.g. in techniques involving small muscle groups) or often have considerable muscular strength and may excel in certain physical activities. Consult with them to establish what they can and cannot do.</p>
<p>Where possible, frequently change and vary the choice of activity/activities for obese children (and encourage them to do likewise if exercising on their own), to avoid over use or fatigue of the same muscle groups and joints.</p>
<p>Adopt aerobic activity as the principal type of activity which involves working the large muscle groups for a sustained period of time. In so doing, keep the activity of a low to moderate intensity (and recognize that it may need to be of a very low level initially). Place emphasis on increasing the duration and frequency of the activity rather than the intensity. Low impact activities (e.g. walking, stepping) are also likely to be more appropriate as these will reduce stress on the bones and joints and be easier and/or more comfortable.</p>
<p>Encourage obese children to engage in non-weight bearing activities (e.g. swimming, aqua aerobics, seated aerobics, seated multi-gym work, cycling, indoor rowing). These are considered particularly appropriate as the body weight is supported, thereby also reducing stress on the bones and joints and making movement easier and/or more comfortable.</p>
<p>Incorporate physical activities which will promote and improve muscular strength and endurance. These are important to enable obese children to carry out everyday tasks more easily, which may in turn facilitate a more active lifestyle. Circuits or resistance exercise can be beneficial for this and can also help to increase fat free mass and improve muscle tone. If using fixed resistance equipment, however, intense or maximal resistance work must be avoided. Consult the Guidelines on Health-Related Exercise within Safe Practice in Physical Education (afPE, 2008) for specific guidelines on resistance training.</p>
<p>Try to incorporate physical activities which will promote and improve balance and posture. This might be through dance or gymnastic activities or via circuits or resistance exercise (e.g. the flamingo balance or working the postural muscles such as the shoulders (trapezius/rhomboids) and back (erector spinae) as in 'shoulder squeezes' and 'back lifts').</p>
<p>Games are suitable for most obese children as they typically involve intermittent or short bouts of physical activity, with rest periods. Ensure games and team games especially are managed sensitively though to ensure children are appropriately included and accepted within the group (see points below).</p>

Where appropriate, make adjustments to the size of the activity area, team size or equipment used to accommodate for an individual's body size and/or poor exercise tolerance or movement efficiency. For example, reduce the size of the court/pitch, increase the number of players, use different weight/sized equipment.

Avoid practices which highlight and focus on size and weight to avoid stigmatising and causing obese children embarrassment and humiliation. For example, weighing and measuring to calculate BMI, using skinfold calipers, introducing 'fat' clubs.

Select physical activities, tasks, as well as the positions and responsibilities you allocate to individuals carefully and sensitively to avoid obese children becoming disheartened, embarrassed and humiliated. For example, avoid assault courses which involve children squeezing through or jumping over equipment, unfair races, public displays, or activities/games which require constant running or jumping. Also avoid always allocating inactive and/or lower status roles or positions to the obese individuals(s) in the class (e.g. scorer, goal keeper, equipment helper).

Consider grouping procedures carefully (e.g. avoid letting the children pick teams), and take weight and size into account when grouping for specific tasks and activities with a partner or within a group/team (e.g. marking/defending or tackling in games, supporting or partner/group balancing in gymnastics).

Beyond the structured and organized physical activity you promote, encourage children to participate in lifestyle activities such as walking or cycling to school and/or the shops, using the stairs instead of the lift, and assisting with household chores around the home such as cleaning the car and gardening. All of these will increase total energy expenditure.

Encourage children not to spend too much time in sedentary activities such as watching television or playing computer or video games. At the same time, avoid labelling sedentary activities as 'bad' activities for, as potentially 'relaxing' activities, they have a role to play in the promotion of mental health. It is advisable to carry out all activities (physical and sedentary) in moderation.

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