What's eating into school recess? Implications of extended eating for free play and physical activity.

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Abstract

An assumption made when designing recess interventions in schools is that there is a clear demarcation between eating time and play time. We used observational data conducted as part of the Sydney Playground Project to test if this assumption was correct. The Sydney Playground Project is a cluster randomised controlled trial of a recess intervention. The SPP was conducted in 12 Sydney schools and involved 214 children aged 5-7 years. Analysis of the baseline behavioural observations revealed an average of 18.5% of children's free play time was spent eating. Twenty observations were used to explore the extent and nature of influence of eating on children's play. For most children, eating reduced their capacity to engage fully in play. Some children were socially isolated and unable to play while eating. A small number of children seemed not to be affected by their own eating, but were affected by their peers' eating. The results indicate that a substantial proportion of children's free play time can be lost to eating. Although the methods used do not allow us to make causal inferences, the present findings suggest that eating had a negative impact on quality and quantity of play. Time spent eating should be considered when estimating time children have for free play. Consideration should also be given to reducing the amount of free play time that can inadvertently be spent eating.

Introduction

Play during school recess time offers a break from classroom work and a chance to socialise and be physically active. Play is also recognised for both developmental and academic benefits. Recently, in response to reductions in recess time in US schools, a group of academics published a collection of compelling evidence on the importance of play in children's learning (Singer, Golinkoff & Hirsh-Pasek, 2006). Wide ranging benefits include improved literacy (Christie & Roskos, 2006), attention (Mahar, 2011; Pellegrini & Holmes, 2006), self-regulation (Berk, Mann & Ogun, 2006) and classroom behaviour (Barros, Silver & Stein, 2009). Health professionals have also raised concerns about erosion of recess time as it is seen as an important time for children to engage in physical activity, which in turn has positive impacts on academic achievement (Sallis, 2010).

Schools in New South Wales (Australia) generally include free play time as part of recess and lunch. The combined time for these two periods varies from school to school, but generally accounts for between 60-90 minutes per school day, with approximately 15-30 minutes required for eating

(including collecting and returning lunch boxes and disposing of litter). For the remainder of this paper, we will use the term 'recess time' to refer to the combined curriculum free periods known in New South Wales as recess and lunch time. This is partly for convenience and partly for consistency with international literature.

Schools are often recognised as ideal sites for intervention programs, partly based on the assumption that all children experience extended periods of free play time. Additionally, within the school context, it is possible to offer programs to all children and disseminate information to children, parents and teachers (e.g. Bundy, et al. 2008). Successful interventions include those that promote play (Bundy, et al. 2007), physical activity (Bundy, et al. 2009; Ridgers, Stratton, Fairclough & Twisk, 2007; Verstraete, Cardon, De Clercq, & De Bourdeauhuij, 2006) and social skills (Anderson-Butcher, Newsome & Nay, 2003). For these types of programs to be effective however, it is essential that children have adequate free play time and peer contact available.

During data collection and analysis of our play intervention project, known as the Sydney Playground Project (Bundy, et al, 2011) we noticed that some children's recess play time seemed to be reduced by time spent eating or drinking that extended beyond the formal period for food consumption. Although many previous studies have been conducted during school recess periods and it is frequently recommended that interventions occur during recess, there has not been a discussion of eating time during recess and how this might impact on participation in behaviours typically associated with recess. We decided to use data from the Sydney Playground Project to investigate whether food consumption during recess might be interfering with typical recess behaviours. To achieve this, we set out to investigate the amount of time spent eating and whether eating had an impact on social and physical activity during recess time.

Methods and Results

Figure 1 provides an overview of the data collection and analysis process. It is important to note though that these data were from a larger project, the Sydney Playground Project (see Bundy, et al., 2011) and were from baseline only. The reason for confining analysis to baseline data was that the intervention directly targeted children's playground behaviours and therefore posttest observations could not be considered representative of children who had not received the Sydney Playground Project intervention.

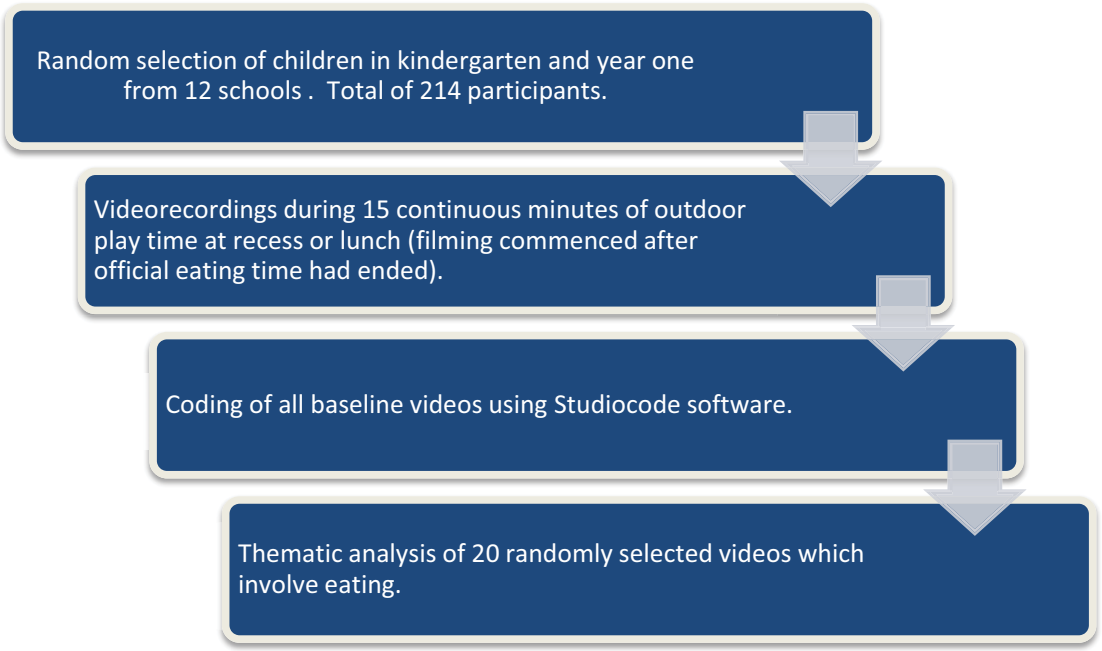

Figure 1: Overview of the data collection and analysis process.

Participants

Children in Kindergarten and Year 1 attending twelve Sydney Catholic Schools were randomly selected to participate in the study. Parental consent was given before participation. Video observations were made of the 214 participants, aged 5-7 years old. The SEIFA (Socio-Economic Indexes for Areas, ABS, 2006) ratings indicated the schools were in socio-economically low-average to average communities. One school was in the lowest 15% (SEIFA scores less than 900). No schools were in the upper 15% (scores above 1100). Further details of participant recruitment can be found in Bundy, et al. (2011).

Observation and Coding of Outdoor Play

Data reported in this paper includes videos from 142 children. Some videos from the full sample of 214 children were not satisfactory for the first round of coding, with repairs required to videos (e.g. compression changes, merging of non-continuous videos) and others were deemed unsuitable for coding due to problems with sound or vision.

For each participant, one video of outdoor play during recess or lunch was recorded during baseline of the Sydney Playground Project. Each video had an intended duration of 15 consecutive minutes, although some videos were longer and average time was approximately 16 minutes. Recording commenced after the formal eating time had finished. If schools did not have a clear demarcation between eating and play time, video recording commenced when the transition from eating to play had clearly occurred. Children wore a Bluetooth microphone during filming to ensure capture of vocalisations.

Multiple dimensions of children's play and non-play behaviours and social interaction were coded from the videos (see Bundy, et al. 2011 for further details). Eating was included as a behaviour that could occur during play or non-play. Studiocode software was used during the coding process. For the present paper, data from Studiocode have been used to determine the total proportion of time spent

eating. Existing footage was also used to randomly select videos in which eating occurred to allow for further analysis of the behaviours captured in those videos. The mean percentage of time spent eating was 18.5%, with a standard deviation of 9%.

Thematic Analysis

A list of 40 video observations in which eating had occurred was identified. The intention was to analyse 20 of these videos. If saturation had not been reached at 20, a further 10 would have been analysed. The process was to continue until saturation was achieved. Saturation was achieved after approximately 10 videos. Selection of the videos involved two occasions of random selection. The first was for preparation of two previous papers (Engelen, Ragen, Naughton, Wyver & Bundy, 2011; Wyver, Bundy, Schiller, Tranter, Naughton & Ragen, 2010) and the second was to provide additional video material to analyse for the present paper.

Familiarisation

The initial data coding was conducted by the first author who, along with the second and third authors, was directly involved in data collection. However, it is important to note that most of the videos analysed for this project were not recorded by the first author. All videos were viewed at least twice, some up to five times to increase familiarity. Other video footage involving the focus children had also been viewed (i.e. video footage in which a peer was the focus child).

Coding

Detailed notes were made regarding children's eating behaviour. Drinking and opening of food packaging were considered to be part of 'eating'. Particular attention was paid to children's play, social interaction, physical activity and observed affect. Within the videos, it was possible to observe differences when children were engaged or not engaged in eating behaviours.

Derivation of Themes

The coding notes were used as the corpus from which themes were derived. Themes were refined until all observations could be accounted for with the smallest number of themes. The process included rechecking coding and original video footage.

Themes

Three themes emerged. These were:

Eat and Play

Of the 20 videos studied, three children's play seemed unaffected by eating. One child carried a sandwich in her hand, much in the same way as a handkerchief would be carried. She occasionally ate bits of the sandwich, but eventually disposed of it. Interestingly, although her own eating did not seem to affect her play, the eating of her peers did seem to reduce the intensity of play. Another child appeared exceptionally skilled at combining eating and play. His eating was very efficient and did not appear to be a barrier to physical activity.

Eat and Watch or Play with Caution

In the majority of cases, children's eating reduced their ability to engage in social and physical play. Some children were onlookers while eating, some engaged in activities but with limited capacity to

participate and others moved between these two types of involvement. Handling food limited bimanual activities and children moved more cautiously in what appeared to be attempts to prevent food from dropping or spilling, but possibly also to reduce the chance of choking on food when running. Play was interrupted when children disposed of food packaging.

Although, for most children, it remained possible to interact socially and engage in physical activity while eating, it was apparent that their ability to do so was compromised by the presence of food. All video footage contained periods when these children were not eating. Typically, a video would show a child watching or partially interacting while eating, followed by a period of fuller social participation and a higher level of physical activity when eating had finished.

There was also evidence of peers appearing frustrated by prolonged eating of their friends. For example, one girl was told by two other children that she had to hurry up eating. The child had been trying to unwrap a cheese stick and wasn't succeeding. She decided to leave the cheese stick until lunch and went to play with her peers.

Eat in isolation

Four children were socially isolated for at least some of the time while eating. It did not appear these children were unpopular or using eating as a way of avoiding social situations. They received requests from peers to engage in play. For example, one child was directly asked, "Can you play with us?" to which he replied, "I have to finish my drink". The child who had to finish his drink had a purchase from the school canteen and was, at least, near other children. Some children who were isolated sat in a designated lunch area rather than in the play area and these children often required extended time to finish food which had been brought from home. One child, for example, had many visits from other children whilst eating and a teacher mentioned several times that he did not need to finish all of his lunch. However, he persisted in eating and appeared to enjoy neither the food nor his social isolation.

Further observations

A range of factors appeared to be responsible for sustained eating during recess. These included; availability of snacks from a school canteen during play time, large portions in lunches and snacks brought from home, packaging and wrapping of food items that was time consuming to open and often required adult or peer assistance.

Discussion

Our results indicate that a substantial proportion of children's free play recess time was spent eating. Additionally, eating has an impact on the quality and quantity of play behaviours. Thus while it is often assumed that children are accruing a range of benefits from free play time, it is clear from our results that for some children, opportunities for free play are compromised by excessive eating during recess.

Our observations indicate there is a range of within school and out of school factors contributing to excessive time spent eating. Further investigation is needed however, before clear conclusions can be drawn about the factors underlying excessive time spent eating. For example, in the most extreme case of a child eating in isolation, the size of his lunch was excessive and a teacher let the child know that he did not have to eat all of the lunch. The reason the child continued to eat the lunch is unknown.

Large snacks/lunches with complex wrapping and packaging were apparent in some of the video observations and were also observed by the Sydney Playground Project team when visiting schools. Some Australian schools have policies on the types of food that children can bring for snacks and lunch, but this does place a significant burden on school personnel to educate families about healthy meals and monitor food at school. Health professionals in Australia have developed resources for education of families about school lunches, including nutrition, waste reduction and involvement of children in selection of food (e.g. Department of Human Services, 2008; Nutrition Australia, n.d., Raising Children Network, 2009). These resources however, do not pay attention to eating time. On the basis of the present results, it seems important that efficient eating time is included in future advice to raise awareness that children may miss out on other opportunities if too much time is spent eating.

Problems associated with eating at school may not be easy to detect when engaging in general monitoring of the school playground. As noted, most children were engaged in social play while eating, but the quality and intensity of play was reduced. If observations do not have a specific focus on the relationship between eating and play behaviour, it may appear that the changes in quality and intensity are part of a normal pattern of play behaviours. For this reason, it is important that schools consider minimising or eliminating eating during play periods, with the exception of drinking water.

There was significant variation in the ways eating times were managed in the schools in which this project took place. Some schools had clearly demarcated space and time for eating. Some had canteens operating during play time. Some schools had indoor eating while others had outdoor eating. Although it appeared that schools with clear demarcations between eating incurred the least problems with eating during play, it is important to note that the present study was not specifically designed to compare schools on this basis and there may be other contributing factors that were not apparent from our observations.

Researchers and clinicians conducting recess time interventions should find out about eating policies and attempt to estimate the amount of 'non-eating' play time before the intervention commences. As noted previously, time spent eating is not always obvious to adults, yet it may have a significant impact on opportunities to engage in physical, social and other activities that may be the focus of the intervention.

In this investigation, we examined the impact of eating on individual focus children only. We have not examined the impact of eating on overall play opportunities and participation. During analysis of videos, it was clear that some children who were not eating were affected by their peers' eating times and behaviours. Many children were observed to wait for others or attempt to start games with smaller numbers of children anticipating that others would join in when food was finished. This limitation in our design most likely means that our results underestimate the overall impact of eating on quality and quantity of play occurring in school playgrounds.

The present results make clear that teachers, parents, health professionals and researchers should not assume that free play times that occur during recess and lunch periods are exclusively available for play. For some children, the time available for play may be quite restricted by eating behaviour or volume and these children are unlikely to optimally benefit from interventions occurring in the playground.

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