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PLAY RECONSIDERED, RESURRECTED AND REPOSITIONED IN CHILDREN: CASE STUDY RESULTS FROM SINGAPORE

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Review paper

Abstract

Hurried and highly scheduled lifestyles among children are common, especially among developed countries in East Asia such as in Singapore. Research data suggest that young people do not meet daily activity guidelines that promote physical health. There is a cogent need to reconsider, resurrect and reposition play in young people such that children can internalise the merits of play and caregivers can recognise that play confers social-emotional outcomes that are valued by those who invest in education. Data emanating from Singapore suggest very promising social-emotional learning outcomes following a 10-week intervention programme conducted during school curriculum hours.

Key words: children, physical health, play, CASE study, Singapore

Introduction

Physical inactivity prevalence among children and adolescents

Physical inactivity data among children and adolescents in Singapore are worrisome. For example Chia (2008) showed that on boys and girls of normal boys weight aged 10 and 15 years are largely still on activity monitored days over a 10-hour periods on a weekday (mean of Tuesday and Thursday) and on a weekend day (Saturday). This means that physiologically, they recorded mean heart-rate (HR) responses, over the 10 hours that were less than a mean of 120 beats per minute (bpm). Indeed, the children and adolescents spent 86-94% and 96-99% of the monitored time, respectively on the weekday and on the weekend at a HR<120 bpm. A HR response that is less than 120 bpm is normally described as sedentary. These data are also verified by survey data on the physical inactivity time of adolescents on a typical school day by the Health Promotion Board (2002) of Singapore, where boys and girls spent about 15 hours engaged in physically non-exerting activity like attending school, TV and computer, doing homework and transport time. In terms of daily pedometer steps, boys and girls accumulated an average of 9500 daily, evenly split between steps accumulated within-school-time and steps accumulated out-of-school time (Chia et al, 2005). Young people therefore do not meet recommendations for daily accumulated physical activity of at least up to 60-90 minutes of activity of at least a moderate intensity (HR>140 bpm) (Cavill et al, 2002; Andersen et al, 2006) or step counts of up to 13000 for girls and 16 000 for boys (Duncan et al 2006).

Reconsidering, resurrecting and repositioning play

Efforts at getting young children to be more physically active on a daily basis require a critical rethink. As the associations between physical activity and positive physical health outcomes among young people are low to moderate at best (Malina, 2001), there are compelling reasons to rethink and reconsider, resurrect and reposition play as the incentive for young people to get physically active and also to provide and strengthen the evidence that engaging in play can confer social-emotional outcomes that are important for the holistic development of young people. Play has the potential to improve all aspects of a child's wellness- social, emotional, mental, and also physical dimensions of health. Children are physically active in different ways than adolescents and adults. Preschoolers and primary school pupils at play engage in many varied activities and with frequent rest periods. Compared to exercising adults or adults playing sport, children are less preoccupied with winning or sustaining an exercise effort and there is greater spontaneity and creative and exuberant expression. These differences arise perhaps because the developing brain of the child requires a pattern of varied stimulation from the environment so that it can develop optimally (Rowland, 1998).

Threats to play

Children face many threats to play and lose the licence for play because of environmental, social and regulatory prohibitions in and outside of school.

Hurried and highly scheduled lifestyles among children mean little free time for play, even during the holidays. Parents feel compelled that children's lives must be full of gainful activities, mostly sedentary ones. While some may benefit from such highly structured and scheduled activities, the importance of downtime and free time for children to engage in self-directed spontaneous play cannot be ignored. In the push for academic excellence in Singapore, free play time and even physical education classes are oftentimes cancelled and used for academic work, enrichment classes in academics when examinations loom. Also, physical play is being substituted by play in cyberspace where the allure of cyber sports may be more attractive than the allure of physical sports among children and youths. For example, a cyber version of any sport is not dependable on the physical talent or skill of the player, there is also ease of access to playing the cyber sport, and you can play with anyone in the world and at any time of the day or night. A physical version of the sport is constrained by time, facility, skill and availability of team-mates and opponents. It is not difficult to understand why more young people are attracted to cyber-gamming than to the physical sport. It is a challenge therefore for promoters of the physical version of the sport in making the physical sport more fun and attractive and also accessible to the less-skilful so that more will play the physical version of the sport. Promoters of the physical version of the sport must not assume that the allure of the physical sport is for all-time, and remains unchallenged by a globalised environment that young people are exposed to, and find innovative ways to sustain and increase the popularity of the physical sport among young people.

Merits of play

Play promotes attention and cognition

Play can help to enhance or develop attention which is a highly valued aspect of cognitive function that involves impulse control and inhibition. This aspect of cognition in young children allows for group learning. Examples of impulse control in action is when young children listen attentively when a teacher speaks and allows for children to be engaged in a shared group activity where they many have to take turns to speak or to perform. Animal studies on rats and mice show that when they are exposed to enriched environments- cages with toys and tunnels to encourage exploration, more rodents, provided with an exercising wheel- they showed improved learning rates and better memory that was associated with brain neurogenesis (van Praagh et al 2000). When children engage in outdoor play, the

outdoors is the enriched environment, where opportunities for decision-making encourage problem-solving and creative thinking as outdoor spaces are more varied and less constraining than indoor spaces. There is also usually greater range of visual and gross motor exploration, when children engage in outdoor play that is unfettered and structured by adult-intervention. Free play outdoors induces curiosity and the use of imagination among children (Pica, 1997). Problem-solving that is associated with play may promote higher order cognitive skills such as planning, organising, sequencing and decision-making- sometimes referred to as executive functioning. These skills are not only useful for academic success in school but also important for children to cope with daily tasks like looking after their own personal belongings, travelling to new places and ultimately skills required for independence.

Play promotes affiliation and socialisation

Physical play allows for children to learn how to socialise and get along with others, and to be part of a group. A measure of a child's social health is marked by his or her ability to make friends, and to sustain friendships, to lead and to follow, to compromise and to negotiate when they do not agree with each other. Unstructured play with peers, significant others like brothers and sisters and parents or other adults allows children to make decisions such as what to play, who to play with, who can play, when to start, when to stop, and even what are the rules for play. There is experimentation and real learning about the rules of social engagement among peers and others. Hence time at play can, over time foster qualities in the child like flexibility, empathy, self-regulation, and self-awareness, qualities amalgamated as emotional intelligence or EQ. EQ is essential for successful social intercourse in adulthood and contributes to success in school and in the workplace.

Play promotes emotional well-being

Children play because they are happy when they play. Free play can improve many aspects of emotional well-being in children such as reducing anxiety, depression and aggression- these are however not yet subjected to much scientific research among normal children. Anecdotal evidence and focus group discussions with parents of preschoolers suggest that improved mood was the most immediate response of children after play (Harvey-Berino et al 2001). Research also suggests that when children play outdoors, sunlight may have a positive impact on improving mood (Wirz-Justice et al 1996). In the hurried and highly scheduled lives of young people, there is also much stress.

This 'allostatic load', which is experienced by the child's brain can impair health (McEwen, 1996). Contrarily, a smile on a child's face at play reflects many physiological processes in the body that can improve health. Gross motor play has the potential of alleviating these stresses in children. Moreover, when children learn that play helps them to manage their daily stresses, they learn an effective stress-alleviating strategy and they are likely to sustain physical activity in their lifetime. Despite these benefits of free play, research attention linking the time allocated for play and the associated socio-emotional-mental outcomes in children are lacking and represent a fertile area of research. Hence the purpose of the study was to evaluate the SEL outcomes in a large sample of male and female primary school pupils following a 10-week intervention programme called PRIDE for PLAY, which infuses daily pockets of play time in the school curriculum during the formal schooling hours.

Method

PRIDE for PLAY-a 10-week school based programme

PRIDE for PLAY is an acronym for Personal Responsibility in Daily Effort for Participation in Lifelong Activity for Youths (Chia, 2006). This programme is described in detail elsewhere (Chia, 2007) but has not been subjected to research attention. Two primary schools were approached for the implementation of the 10-week intervention programme that involved 490 pupils aged 8-9 years old. The programme, essentially involved an infusion daily physical play of between 20 to 45 minutes during school curriculum hours, either as stand-alone additional play sessions or as part of an extended recess, where pupils could have light refreshments and play. The arrangement involved working closely with the school leaders and all Primary Two Class teachers to forge a strong partnership for action and subsequent evaluation. Outcome deliverables like pre-and post school-based physical activity, assessed using pedometers, social-emotional learning (SEL) outcomes among pupils, assessed using modified questionnaires and indicators of academic achievement (semester examination results) were garnered. School-incident logs that detailed discipline cases and accidents were also monitor before, during and after the programme. SEL components measured included:- self-awareness (recognizing emotions, accurate self-perception, recognizing needs, strengths, values & self-efficacy); social awareness (empathy, respect for others, perspective taking & appreciating diversity); self-management (stress management, self-motivation, discipline, goal-setting, guiding;

relationship management (communication & social engagement, cooperation, negotiation, conflict management & seeking help) and responsible decision-making (problem-solving, personal, social & ethnic responsibility). The 70-item questionnaire was read out item-by-item by the principal investigator in a quiet classroom while pupils answered the questionnaire item. Each pre and post session took about 40 minutes to complete. Focus group interviews were also conducted on a sample of parents and teachers who were involved in the programme. Pre- and post-test data were collected and analysed using part-sample t- tests and the level of statistical significance was set as $p < 0.05$.

Results

Following the 10-week intervention programme, step count within-school-hours significantly increased by 24 % from 3742 to 4642 in one school that involved 270 Primary 2 pupils aged 8-9 years old. In the other school that involved 225 Primary 2 pupils, daily step count in school increased by 10 % from 4520 to 4984. The different margins of improvements in step count could be attributed to between school differences in terms of access to a school field and greater open spaces for play and perhaps to the different school ethos. Sample results of the 10-week intervention showed that indicators of (i) self awareness (e.g. I know what I am good at), (ii) impulse control and stress management (e.g. I can concentrate better after play), (iii) self-motivation and discipline (e.g. I can concentrate when doing homework), (iv) negotiation and conflict management (e.g. I will discuss with my friends further if they do not agree with me) and (v) personal and moral responsibility (e.g. It is wrong to cheat to win), all showed significant improvements after the 10 week programme among both normal weight and overweight pupils. There were no significant sex differences in the SEL outcomes. Results of focus group discussions before and after the programme with teachers and parents revealed that the pupils were most enthusiastic about the programme and would often remind the teachers that it was time for outdoor play. Parents revealed that their children were more cooperative at home and would even help out with household chores while teachers noticed that overall pupils were better behaved in class and that there were less disruptions and discipline issues with pupils as the PRIDE for PLAY programme progressed. In terms of academic achievement, the semester tests results of the pupils showed no discernable changes. There was also no discernable change in terms of the school incident and accident logs because of the programme.

Discussion and conclusion

This is apparently the first study in East Asia and in Singapore to examine the links between play and SEL outcomes in a sizeable cohort of primary school children. Collectively there were significant increases in step count from pre-test to post-test. These amounted to achieving 39-42% of the daily recommended step count for girls and 31-33% of the recommended step count for boys, during school-going hours, and makes a sizeable contribution to meeting the recommendations for accumulating 13000 steps for girls and 16 000 steps per day (Duncan et al 2006). Importantly, indicators of SEL- such as attention (concentration), affiliation (socialisation) and affect (emotion) showed marked improvements from pre-to-post test. These changes were verified and confirmed by the focus group discussions with parents and teachers. Concerns raised by teachers about increased incidences of accidents and discipline cases that could arise because of the play programme did not materialise. Teacher and parental feedback showed that the pupils were better behaved and displayed greater responsibility for their own well-being at school and at home. Social emotional learning outcomes of the pupils involved with the PRIDE for PLAY programme were also significantly improved with no compromise to academic standards in both schools. The principals of both schools raised the following points that are instructive for the success of PRIDE for PLAY- the programme had the support and buy-in from the key stakeholders- school management, teachers, parents and the pupils themselves; there was great enthusiasm among pupils for the programme as they were free to be themselves, and had the freedom to decide how they wanted to play and there was increased teacher-pupil understanding; reduced incidences of pupil indiscipline in class,

no increase in the number of physical accidents and no drop in academic achievement among the pupils. School leadership was instrumental in the initial success of PRIDE for PLAY and will play an even more important part in the continued success and sustainability of the play programme. According to Leithwood et al (2008), the success of health-promoting schools pivot on the following factors which were omnipresent in PRIDE for PLAY- shared vision, clear directions, beliefs and values, well-developed staff; well-organised school, structure and procedures and very good management of the teaching and learning programmes. Some other schools have translated, customised and adapted the PRDIE for PLAY programme into daily physical education. Further research directions associated with PRIDE for PLAY include garnering more secure evidence of the social-emotional learning outcomes as a result of programme implementation in a wider spectrum of schools in Singapore. As Singapore endeavours to build a Sporting Culture in the population, it is commonsensical to foster and inculcate a play culture among her youths first. After all, sport without play is playing sport devoid of fun and enjoyment.

The infusion of daily play sessions of between 20-45 minutes in the school curriculum can reap SEL outcomes that are difficult to materialise in a classroom setting. PRIDE for PLAY showed that with strong and positive school leadership and a strong buy-in from key stakeholders, pupils can benefit from daily play without any compromise in academic achievement. Pupils were enthusiastic about the programme and the daily play allows pupils to accumulate up to 40% of the recommended daily step count during the schooling hours. Further research is advised to verify if PRIDE for PLAY will benefit older pupils and also other schools with different ethos in Singapore.

References

- Andersen, L.B., Andersen, S.A., Harro, M. et al (2006). Physical activity and clustered cardiovascular risk in children: a cross sectional study (The European Youth Heart Study). *The Lancet*: 368: 299-304.
- Cavill, N., Biddle, S., & Sallis, J.F. (2001). Health enhancing physical activity for young people: statement of the United Kingdom Expert Consensus Conf. *Pediatric Exercise Science*, 13: 12-25.
- Chia, M. (2006). PRIDE for play. Keynote address to 1st Singapore Heart Foundation. *National Institute of Education National Seminar Hearty Children-Sturdy Future-managing obesity in schools*. Suntec City, 21 January. Singapore.
- Chia, M. (2007). PRIDE for PLAY: personal responsibility in daily effort for participation in lifelong activity for youths. A Singaporean context. *Journal of Sports Science and Medicine*, 6: 374-379.
- Chia, M. (2009). Physical inactivity among children and adolescents in Singapore- a paradoxical issue. *Acta Kinesiologica*, 2(2): 7-15.
- Chia, M., Wang, J., & Quek, J.J. (2005). Measures of reliability and validity of school-based pedometer step count of Singaporean children. *Asian J of Exercise and Sports Sci*, 1: 17-24.

- Duncan, J.S., Schofield, G., & Duncan, E.K. (2006). Pedometer-determined physical activity and body composition in New Zealand children. *Medicine and Science in Sports and Exercise*, 38, 1402–1409.
- Harvey-Berino, J., Geller, B., Dorwaldt, A., Flynn, K., & Walfield, L. (2001). A qualitative data analysis of parental attitudes towards preschool physical activity. *Annals of Behavioural Medicine*, 23: 24S.
- Leithwood, K., Day, C., (2008). Starting with what we know. In: Day C, Leithwood K (Eds). *Successful principal leadership in times of change: an international perspective*, 2007 pp 1-13.
- Malina, R.M. (2001). Physical activity and fitness: pathways from childhood to adulthood. *American Journal of Human Biology*, 13:162-72.
- McEwen, B.S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 338:171-179.
- Pica, R. (1997) Beyond physical development: why young children need to move. *Young Children*, 52:4-11.
- Rowland, T.W. (1998) The biological basis of physical activity. *Medicine and Science in Sport and Exercise*, 30:392-399.
- Van Praag, H., Kempermann, G., & Gage, F.H. (2000). Neural consequences of environmental enrichment. *Nature and Reviews in Neuroscience*, 1:191-198.
- Wirz-Justice, A., Graw, P., & Krauchi, K. (1996). "Natural" light treatment of seasonal affective disorder. *Journal of Affective Disorders*, 37:109-120.
- * * * Health Promotion Board (2002). *Health Promotion Board Survey of Physical Inactivity of Teenagers in Singapore*. Singapore: HPB, Ministry of Health.
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RAZMOTRITI, USPOSTAVITI I OBNOVITI IGRU DJECE: REZULTATI CASE STUDIJE U SINGAPURU

Sažetak

Užurban i detaljno isplaniran način života među djecom je česta pojava, posebno u razvijenim zemljama Istočne azije poput Singapura. Podaci kazuju da mladi ne ispunjavaju dnevne smjernice koje osiguravaju tjelesno zdravlje. Postoji potreba da se razmotri, obnovi i ponovo uspostavi igra kod djece. Djeca mogu iskoristiti blagodatne igre, a odgajatelji mogu prepoznati društveno-emocionalne ishode koje vrednuju oni koji ulažu u obrazovanje. Podaci proizašli iz Singapura sugeriraju obećavajuću socijalno-emocionalnu naobrazbu nakon desetosedmičnog interventnog programa koji je proveden za vrijeme školskih sati.

Ključne riječi: djeca, tjelesno zdravlje, igra, CASE studija, Singapore

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