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Fostering physical activity for children in child care
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Abstract

Australian children spend considerable time in child care. Caregivers and the care environment can appreciably influence the physical activity patterns of children placed in day care centres. The amount and type of physical activity young children engage in can have an impact on later motor skill competence and activity seeking behaviour. This paper is an evaluation of the social and environmental variables that influence physical activity behaviour for children aged 3 – 5 years in centre based long day care environments. Centre based care usually caters for up to 35 children aged from birth to 5 years providing care all-day, or for part of the day, in facilities specially built or adapted for child care. Within Gippsland, Victoria, long day care (N = 3) centers were evaluated to identify affordances and constraints for physical activity. An environment analysis using quantitative techniques was used to describe influencing environmental factors, while three focus group interviews were conducted with staff and administrators exploring feelings towards physical activity. The environment analysis revealed that the opportunities for movement were influenced by the availability of appropriate equipment, time spent outside, weather, rules and regulations, length of stay, and most importantly available space (particularly outdoors). Focus group interviews revealed that all groups valued physical activity for young children, however staff was concerned about their ability to promote physical activity for young children. Issues concerning social and environmental barriers to appropriate physical activity experiences are raised that have implications for planners, administrators, carers, and parents of children associated with long day care.
Fostering physical activity for children in child care

Within Australia the use of formal child care is often linked to work commitments of parents and in particular mothers. Indications are that more and more children are spending considerable time in the care of others and the quality of this care has the potential to significantly impact upon children’s lives (Australian Bureau of Statistics, 1999). In June 1999, formal care was used by 23% (733,200) of Australian children, which represents an increase over previous years (Australian Bureau of Statistics, 1999). The most commonly used types of formal care were long day care and preschool (33% and 32% respectively), followed by before and after school care programs (21%), family day care (12%), and occasional care (6%). Of those children who used formal care 43% were less than five years of age. An upward trend in the use of formal child care has been noted over the past decade with 60% of children using it for 5-19 hours per week (Australian Bureau of Statistics, 1999).

It is generally agreed that during the preschool years, children should be encouraged to practice movement skills and engage in appropriate physical activity for health, social, and psychological reasons (American Medical Association, 1999; Corbin, Pangrazi, & Welk, 1994; National Association for Sport and Physical Education, 2002; Shilton & Naughton, 2001). While physical activity data for Australian children are not systematically collected at a National level, the prevalence of insufficient physical activity in adults (43%), coupled with high rates of overweight and obesity in children and adolescents (21% for boys and 23% for girls), gives rise to major health concerns (Shilton & Naughton, 2001). While the relationship between physical activities during childhood and longer term adult health outcomes remains unclear, there is growing support to establish a lifestyle that includes physical activity at an early age (U.S. Department of Health and Human Services, 1996).

Importance of Physical Activity for Young Children.

Regular participation in physical activity has been well established as an integral part of a healthy lifestyle in adults (Pate et al., 1995). It has been recognized that most diseases affected by exercise (such as coronary heart disease, hypertension, obesity, and osteoporosis) are a result of life-long processes, usually surfacing clinically in the older adult years (Corbin et al., 1994; National Centre for Chronic Disease Prevention and Health Promotion, 2000). Clinical markers of hypokinetic disease have been observed in children (Boreham, Twisk, Savage, Cran, & Strain, 1997; National Centre for Chronic Disease Prevention and Health Promotion, 2000). For Australian children, the increased prevalence of overweight and obesity may be attributed to decreasing activity, increasing inactivity, and a rising caloric intake (Goodman, Lewis, Dixon, & Travers, 2002; Magarey, Daniels, & Boulton, 2001). These results have placed an emphasis on promoting exercise habits in children and adolescents as the starting point of a lifestyle of regular exercise that will continue through adulthood (Corbin et al., 1994). While some evidence exists to support the tracking of cardiovascular disease risk factors into adulthood (Kemper, Snel, Verschuur, & Storm-van Essen, 1990; Wang, Ge, & Popkin, 2000), data demonstrating the tracking of physical activity behaviours is more limited (Kohl & Hobb's, 1998). The lack of supporting evidence may be as much a problem of assessing physical activity in children as much as it is one of tracking (Kohl & Hobbs, 1998). While there appears to be some support for the notion that activity tracks in children (Pate, Baranowski, Dowda, & Trost, 1996) and that inactive children and youth are likely to become inactive adults (Corbin & Pangrazi, 1998), the lack of hard evidence for tracking physical activity has been substituted with a common sense argument. This argument is based on the belief that early positive physical activity experiences will predispose people to enjoy physical activity in later years (Booth, 2001; Centers for Disease Control and Prevention, 1997; Corbin & Pangrazi, 1998;
Medical Journal of Australia, 2000). In addition to physiological and potential public health benefits, children who exercise regularly have higher self-esteem and may exhibit reduced risk taking behaviours (Brown & Brown, 1996; Dinubile, 1993).

**Importance of Movement Skill Development for Young Children.**

Early childhood forms a unique period where children undergo significant social, intellectual, emotional, and physical development. Enhancement of movement skills is believed to play an important role in the development of children within the physical domain, with potential carry-over into the social and cognitive domains (Gabbard, 1988). Body management activities, manipulation opportunities with a variety of equipment, and both locomotor and non-locomotor activities should form the basis of a young child’s pre-school movement experience (Carson, 1994; COPEC, 1994; Gallahue & Ozmun, 1998; Sanders, 1992).

Fundamental movement skills are basic movement patterns that can be adapted, combined and refined serving to provide a foundation from which more complicated skills can be established and later applied to lifetime sporting, recreational, and physical activities (Carson, 1994; Gallahue & Ozmun, 1998). Fundamental movement skill (catch, throw, kick and the like) competency amongst Australian primary school aged children is considered by some to be poor (Booth et al., 1997; Walkley, Holland, Treloar, & Probyn-Smith, 1993). Because success is a strong predictor of motivation to participate and persist in sport, it is essential that young children be provided with opportunities to establish appropriate movement skill competencies at an early age (Walkley et al., 1993; Weiss, 2000; Weiss & Ebbeck, 1996). Without those competencies children are less likely to participate in physical activity as they get older. Okley, Booth, and Patterson (2001) found fundamental movement skill proficiency among other things, to be significantly associated with adolescents’ participation in organized physical activity.

**Barriers and opportunities for early childhood movement.**

Literature exploring physical activity levels of children who are placed in care environments is limited. Deal (1993) used heart rate and log book recordings to compare daily activity patterns between children who attended day care and those enrolled in a developmental movement program. The children in the study were largely sedentary with mean heart rates ranging from 109 beats per minute to 115 beats per minute while some children did not record a single reading above 130 beats per minute for four consecutive hours. Children involved in a directed movement program had significantly higher activity levels than those in care, however no difference between the groups existed during time spent at home. This supports other investigations of preschoolers in the home environment that have found little time is spent engaged in vigorous activity with the greatest portion of time devoted to sedentary or low level activity (Deal, 1993; Freedson, 1989; Saris, 1986).

Higher levels of physical activity have been associated with outdoor play (Deal, 1993; Klesges, Eck, Hanson, Haddock, & Klesges, 1990). The positive effect of an outdoor environment on activity levels of children may have important implications because of the greater tendency for large muscle motor activity and higher levels of physical activity in comparison to indoor environments (Deal, 1993; Klesges et al., 1990). Taggart and Keegan (1997) investigated movement skills of five year old children in pre-primary centres during outdoor play time. Children in these centres rarely engaged in the fundamental movement skills of kicking, catching, and striking while the dominant behaviours were climbing, jumping, and running. This is consistent with findings by Schiller and Broadhurst (2002) who found that only 18% of teachers and directors of early childhood centres provided balls and bean bags for throwing, striking, and
kicking activities. Taggart and Keegan (1997) also found that greater time spent outdoors together with efficient equipment set up and pack up times positively influenced the amount of gross motor physical activity children engaged in.

Adult presence also influences the play patterns of pre-primary children during outdoor play (Taggart & Keegan, 1997). Children participate in fundamental movement skills for longer periods of time when an adult is present. Interaction and encouragement from adult carers precipitated greater engagement in the manipulative skills of catching, throwing, kicking, and hitting. Taggart and Keegan (1997) went on to suggest that play programs should have “balanced periods of teacher-initiated and child-initiated learning experiences” (p.16). The extent to which children’s activity behaviours are influenced by supervising caregivers is unknown at this time, although it could be assumed that as the length of time children spend in care increases so to does the caregiver’s influence. Centre design and equipment type influenced the movement choices of children while adult presence and interaction markedly influenced the length of active play and movement skill practice. Taggart and Keegan’s (1997) data suggested that childcare settings that incorporated free play and directed play were best suited to developing fundamental movement skills.

Guidelines for early childhood movement.

The literature is unclear about the physical activity requirements for young children if they are to be healthy and physically fit. Guidelines for physical activity during childhood are premised on the notion that physical activity levels decline with increasing age. Until recently, physical activity guidelines existed only for children of elementary school age and above (Corbin & Pangrazi, 1998).

The National Association for Sport and Physical Education (2002) recently published physical activity guidelines for children birth to five years of age (see Table 1). These guidelines provide parents and caregivers with some direction as to the quantity and quality of movement experiences that will meet the needs of children. These principles offer care administrators and providers some broad direction as to the physical activity needs of young children. Little however is known about the environmental and physical constraints that are placed on caregivers which in turn impact upon the physical activity opportunities of children in their care.

It is evident that children who receive age appropriate movement skill instruction in activity stimulating environments are more likely to experience success in movement tasks and consequently seek further activity opportunities. It is therefore necessary to ensure that day care environments, in which children can spend a large proportion of their time, provide the opportunities and the structure to engage children in meaningful movement experiences. Meaningful movement programs are those that allow children to learn movement skills based on sound educational principles in an interesting and organized manner. Some evidence exists to support the positive impact of guided physical experiences on movement skill development, perceived competence and physical activity levels (Deal, 1993; Garcia, Garcia, Floyd, & Lawson, 2002; Ignico, 1994; Weiss, 2000). This investigation aimed to explore the opportunities and barriers to meaningful movement for children in care. Specifically the following research questions were addressed:

1. What were the perceptions of staff of the level and types of physical activity young children are engaged in within child care settings?
2. What are the common understandings and feelings about young children’s need for meaningful movement experiences?
3. What barriers and enabling factors staff perceive in relation to the provision of meaningful movement experiences for children in care?
4. What constraints and enabling factors for meaningful movement were present within the physical day care environment?

Table 1

Physical Activity Guidelines for Children Birth to Five Years

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guideline 1</td>
<td>Preschoolers should accumulate at least 60 minutes daily of developmentally appropriate physical activity (structured).</td>
</tr>
<tr>
<td>Guideline 2</td>
<td>Preschoolers should engage in at least 60 minutes and up to several hours of daily, unstructured physical activity and should not be sedentary for more than 60 minutes at a time except when sleeping.</td>
</tr>
<tr>
<td>Guideline 3</td>
<td>Preschoolers should develop competence in movement skills that form the building blocks for more complex movement tasks.</td>
</tr>
<tr>
<td>Guideline 4</td>
<td>Preschoolers should have access to indoor and outdoor areas that encourage performing large muscle activities.</td>
</tr>
<tr>
<td>Guideline 5</td>
<td>Individuals responsible for the well-being of preschoolers should be aware of the importance of physical activity and facilitate the child’s movement skills (National Association for Sport and Physical Education, 2002, pp.9-11)</td>
</tr>
</tbody>
</table>

Part A. Focus group interviews with day care staff

Method

Participants.

Participants for the three focus groups were staff from council operated day care centres. The coordinator of each day care centre was contacted by a research assistant requesting the centre’s inclusion in the research. Subsequent to this agreement, coordinators facilitated recruitment of staff for the focus group interviews. All participants provided informed consent. Two of the focus groups were made up of long day care staff (2 groups: a group of 4 and a group of 5) and occasional day care staff (1 group of 5).

Focus Group Structure and Procedures.

The focus groups were based on the methods described by Krueger and Casey (2000). The purpose of the interviews was for staff to provide their perspective of physical activity participation by young children and opportunities and barriers for physical activity in day care.
Each focus group interview had a principal mediator, a second mediator, and an observer. The principal mediator played the key role in ensuring the discussion proceeded and that questions, prompts and probes (see Table 2) were covered. The second mediator raised questions, prompts or probes omitted by the principal mediator, ensured that everyone was included in the discussion, and provided an oral summary. The observer took no part in the discussion, but took notes, organized the venue and catering, and became familiar with the discussion that they later transcribed.

Table 2
Focus group discussion guide

<table>
<thead>
<tr>
<th>Ice breaker.</th>
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</thead>
<tbody>
<tr>
<td>1. How physically active are children aged between 3 and 5 these days?</td>
</tr>
<tr>
<td>2. How does childhood physical activity effect physical activity in later life?</td>
</tr>
<tr>
<td>3. What role does physical activity have in the development of preschool aged children?</td>
</tr>
<tr>
<td>4. How much physical activity do you feel children get when in day care?</td>
</tr>
<tr>
<td>5. What kinds of physical activities should children participate in? Such as informal play; activities structured so that children develop / learn new skills; activities that make them huff and puff)</td>
</tr>
<tr>
<td>6. What are the things that make provided physical activity opportunities difficult?</td>
</tr>
<tr>
<td>7. What would help a caregiver to provide physical activity opportunities?</td>
</tr>
<tr>
<td>8. If a resource for caregiver was provided what should it be like?</td>
</tr>
<tr>
<td>Assistant mediator provided an oral summary.</td>
</tr>
<tr>
<td>9. Is this an accurate summary? Is there anything we should add?</td>
</tr>
</tbody>
</table>

Focus group interviews were held in each day care centre at a convenient time. The focus group interview length ranged from 60 to 90 minutes and all focus group interviews were tape recorded. Initially an icebreaking activity was conducted and the purpose of the study was explained to the participants. It was emphasized that children aged between 3 and 5 years constituted the focus for the discussion. In addition physical activity was defined for the participants in the following way:

Physical activity is where most of the body is moving for example: riding a tricycle, running or helping in the garden. It would not include quiet play such as puzzles or drawing.

The discussion had two distinct components. The first was the participant’s views of physical activity and young children in general, the second focused more specifically on the day care environment.

Data Analysis.

Unabridged transcripts provided the basis for analysis. Essentially, a long-table analysis (Krueger & Casey, 2000) was performed using a computer to help manage the data. Each quote or section of
the transcript was categorized and coded before it was moved electronically to topic areas. The topic areas reflected the discussion guide at this stage. Subsequently, each author performed a content analysis of each topic and a thematic analysis across all questions independently. The aim was to identify typical responses among participants and to reveal diversity between respondents. To contribute to the verification and validation of the findings, the identified content and themes were examined for consensus, a process Patton (1990) describes as ‘analyst triangulation’.

Results

Most staff felt that young children were inactive. There was a strong feeling among the staff that children were not as active as they used to be. A variety of explanations for this apparent decline were provided, as these quotations reflect,

They can’t go out and explore by themselves like I suppose I did when I was little. I used to go out and do what I want. You can’t do that these days, it’s too dangerous.

Not as active as they used to be ages ago, now because there’s things like TVs, computers and game boys and things like that.

I think our lifestyles have changed now. There are a lot of parents who have children in day care now. They get up and its just go, go, go all the time. By the time they get home its just go, go, go, getting things ready, tea, bath...

Although there was a general feeling that children watched too much television, staff also pointed out that some television programs and videos provide opportunities for physical activity by encouraging children to dance and move about.

When asked whether physical activity at a young age affects childhood in later life staff consistently mentioned modelling and development of patterns. There were clear views that children needed to be provided with environments that fostered physical activity, including role models. The only role models specifically mentioned were parents. Participants’ major focus in relation to role physical activity plays in later life was on social aspects of sharing and cooperation. Other functions of physical activity touched on by staff related to developing ‘healthy mental attitudes’, non-specific ‘coordination’, and developing gross motor skills. As one staff member commented,

Well it just develops their fitness, and their ability, yeah co-ordination and stuff. And it gives them that ... later on in life too. So they are more active, and they’re more co-ordinated, and that sort of thing. Whatever they get at an earlier age then they continue on later.

Staff indicated that children are very active when in day care; more active than when the children were at home. Most often the children would go outside twice per day, usually before 11am and after 3pm to be consistent with the Sun Smart policy. In inclement weather staff would try to get the children outdoors to play. Staff felt this assisted with the children’s behaviour. Participants mentioned that the indoor environment did constrain physical activity. One staff member mentioned,

It depends how much room you’ve got, because in the room you haven’t got all that much space.
Staff felt that children should have the opportunity to participate in play that was structured as well as play that was unstructured. Specific activities consistently mentioned as important physical activity for children in day care were the locomotor fundamental movement skills such as climbing, jumping, and running. Digging in sandpits was often mentioned as as ball play and throwing. When discussing more structured activity, participants began to express concerns about their own skill and said that specialists may be needed. 

*I think it [physical activity] needs to be guided to a certain degree, but I think if it was going to become more involved you would need someone like a physical education teacher to know how to properly show how it’s done. And also keep a safety aspect on it. Whereas if they are [forward] rolling with me I’m not sure if they’re doing it right. I’ll protect their neck a little bit but I don’t know if I’m doing it right for them…..the running and the jumping is fine but when you get to the more gymnastic sort of things you need someone who is more suited….*

The last centre I was actually involved in a PMP program, …a specialist person came in and took the children in my room for I think it was two hours a week and they did PMP, I wasn’t actually involved, but we had big gym balls and that was more structured than what we actual do in our program.

Staff had a great deal to say about barriers for physical activity. Two distinct themes arose out of this section of the focus group interview (a) environmental constraints and (b) staff abilities (see Table 3). Participants were less assured about what would assist childcare workers provide more physical activity opportunities for children in care. The only issue mentioned across all interviews was a need for more staff and money, as this exchange illustrates:

*C: Money so we can have an extra staff member. So we could run an indoor/outdoor program, you know so you have time for one person to be observing children up this end, while the other is down the other end. 

N: Money for equipment. Any equipment. Money for a new shovel, or new balls, anything. It’s just sometimes it’s hard to come by. 

M: Climbing frames. A frames. We have very limited equipment. …Childcare doesn’t have as many resources as pre-school. That’s the difference between childcare and pre-school.*

Staff indicated that workshops and training related to physical activity would be helpful. Staff said they wanted new ideas for games and arranging the environment to promote physical activity. Some participants explained that they wanted to be challenged and broaden their knowledge, but they also described circumstances where they felt childcare workers had stagnated. In a lengthy exchange during one interview, participants described how the stresses of the job led to people becoming “bogged down in day to day routines”, and where:

*...they get set in a rut and you have that same in the same room for so many years. ...they’re bored with that age group or they’ve run out of ideas or their not stimulated….You know there’s more staff get burnt out in that 3-5 year old group, as opposed to the under threes. More staff prefer to work with the babies because there’s another person in the room.*

*When your stressed at work and you can’t be bothered setting the room up really well.*
<table>
<thead>
<tr>
<th>Barrier</th>
<th>Description</th>
<th>Indicative comment/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>Small outdoor play spaces limit the range of activities</td>
<td>We’ve got a small yard, the 4 – 5 [year olds’] kick is getting quite big. Sometimes they are limited… “make sure it doesn’t go on the fence, make sure it doesn’t go on the roof.” Due to the size of the yard there is nothing you can do about that so I suppose room [is important], being able to freely practice movements letting them explore that way.</td>
</tr>
<tr>
<td>Weather</td>
<td>In cold and wet weather children are less likely to get outside and the indoor activities tend to be less physical and gross motor.</td>
<td>In the wintertime, if you get outside for 10 minutes then that’s great.</td>
</tr>
<tr>
<td>Equipment</td>
<td>Some fixed equipment was too big, and therefore too dangerous, for younger children. There was also concern that children lost interest in fixed equipment.</td>
<td>I think they get bored. We have a lot [of] static equipment. If you came to the same place everyday and used the same static equipment, I wouldn’t want to use it either.... A lot of climbing equipment is very static. There’s not a lot you can do with it. You ... tend to think, oh, not this again.</td>
</tr>
<tr>
<td>Diversity of children in the play space</td>
<td>Physical activity of 3 to 5 year olds was limited by safety concerns for younger children.</td>
<td>L: I think the younger children should have their own yard and the older children should have their own yard. But if we separated our yard for the older children we would have nothing left.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A: Because when the children are all outside at once we have to say, careful where you are kicking the ball because the younger ones are about. It depends what equipment you have too.</td>
</tr>
<tr>
<td>Rules and regulations</td>
<td>Children were not allowed outside between the hours of 11am and 3pm during the summer because of the SunSmart rule; and that the child/carer ratios meant that children either needed all to be inside or all outside.</td>
<td>R: We’re limited here, it’s nothing to do with this centre, it’s Government regulations [about] staff. So if you’re in the 3-5 room, you’ve got 15 children on your own, you go outside to get some equipment out, but the time it takes you to get it out, you’re away from those children, you’re not physically supervising them – you’re in the shed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H: You’re continually counting to make sure no one’s gone inside.</td>
</tr>
<tr>
<td>Staff confidence and skill</td>
<td>Staff were concerned about child care workers’ skills and abilities</td>
<td>Also you as a childcare worker, your ability to feel confident in offering those sorts of activities for children, you’ve got to feel good about doing that. Some people are very happy to run music and movement session or an expressive session, but setting up the outdoors is really difficult for them. So that can come in training as well.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It comes down to staff a lot. The staff need to interact with them while they’re out there, encouraging them to try this and try that or add this or add that. So it’s really up to the staff to keep them stimulated. They don’t tend to really play their own games that much.</td>
</tr>
</tbody>
</table>
Participants also considered that some form of resource would be useful. It could take the form of cards or a newsletter which could be collated into a book. The content would provide many ideas for activities and ways to arrange the physical environment. It would need to be visually appealing, easy to read, low cost materials in the games, and the equipment used should be easy to pack away.

Stuff that’s really down to earth, cheap, practical, we need that type of thing. Because we do have children here for years and so many hours, we need new things all the time to keep them interested. You can’t just keep pulling new things out of the store room, because we haven’t got them, but if you can make something that’s really quick and easy, you know then that’s gonna be a benefit to us.

Part B. Environment Analysis

Method

Participants

Centre coordinators of three council operated day care centres within the same regional Victorian shire were contacted by phone and invited to participate in the study. A meeting was arranged with the centre coordinator and prior to conducting the analysis informed consent was obtained. The number of children within the targeted three to five year age bracket for centres A, B, and C were 10, 15, and 14 respectively.

Measurement Procedures

An administered questionnaire of approximately 45 minutes duration was used for this phase of the study. During a visit to the centre, the centre coordinator was asked 29 questions which were categorized into four dimensions that could potentially constrain or enable physical activity. Previous studies established that rules for play (Sallis et al., 1993), convenience of play spaces (Sallis et al., 1993), and time spent outdoors (Klesges et al., 1990; Sallis et al., 1993) are significantly related to preschool children’s physical activity participation. Environmental factors also include social factors such as modelling and encouragement (Sallis et al., 1993). The four dimensions within the questionnaire were (a) centre physical environment, such as size of play spaces; (b) access to local community facilities; (c) staff knowledge and confidence in providing physical activity; and (d) perceived barriers to physical activity.

Results

In all centres children had year round access to one multipurpose indoor room. Available indoor and outdoor space for children’s activity varied between centres (see Table 4). Time spent outdoors was reported to vary widely depending on the weather conditions. The least amount of time was spent outdoors on wet days (ranged from 0 - 2 hours) and very hot days (1 – 3 hours). On mild and dry days the 3 to 5 year old children would reportedly spend between 3 and 5 hours outdoors.
Table 4

Space Available for Activity

<table>
<thead>
<tr>
<th></th>
<th>Centre A (m²)</th>
<th>Centre B (m²)</th>
<th>Centre C (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Space</td>
<td>25</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Outdoor Space</td>
<td>60</td>
<td>70</td>
<td>625</td>
</tr>
<tr>
<td>Sheltered Outdoor Space (sun &amp; rain)</td>
<td>5</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>

Centre rules associated with particular physical activities indoors and outdoors were explored. All centres were happy for activities such as jumping, hopping, dancing, playing cubbies, and balloons to occur inside. All centres had rules that restricted running, riding, climbing, and throwing activities indoors. Fewer restrictions existed for activities outdoors with the exception of bike riding in two centres and striking (bat and ball) activities in one centre. Equipment available for outdoor physical activity comprised both fixed and moveable equipment. Fixed equipment consisted of cubby houses, climbing frames, sand pits, swings, and in one centre a punching bag. Moveable equipment consisted of blocks and balls. Centre B provided access to bats and racquets while Centre A had access bicycles and helmets. The majority of indoor play equipment could be characterized as manipulative toys, such as puzzles, paints, and blocks. Only one centre provided bean bags and all centres had materials to encourage imaginative play. All of the centres had access to television with reported usage ranging from sporadic to two hours per week.

Analysis of daily centre timetables revealed that little time was scheduled for structured physical activities. One centre timetabled daily gross motor play which included dancing, hopping games, rolling balls, climbing, swinging, and ‘Simon Says’. Another centre timetabled ‘staff to interact and encourage children’s play with co-active reciprocal interactions’ while outside. One centre could not provide a detailed timetable of activities. In the other two centres, the total time outdoors according to the centre timetable was significantly less (between 80 and 120 minutes was scheduled) than that reported by the centre coordinator. Of this total scheduled outdoor time, between 25% and 32% was spent getting ready for play, packing up, or eating morning tea or lunch. It was not known how strictly the centre timetable was adhered to. A no excursions policy meant children could utilize other community facilities.

Specific barriers to providing meaningful movement programs included: time available, staff motivation and support for movement as a regular part of the program, space, equipment, and resources. Enabling factors were identified as more space, more equipment, specialist support, more ideas, training, and resources.

Discussion and Conclusion

This investigation explored the opportunities and barriers to meaningful movement for children in care. Staff considered that young children were not as physically active these days as they had been in the past. However, they felt children were more active in day care than they were at home. While staff mentioned that early participation in physical activity was important to develop patterns of behaviour, overall they articulated a limited role of physical activity in the development of the child. Staff mainly focused on benefits such as enhancing social skills and catharsis. Notable
silences were the role physical activity plays in the development of movement skill competency (National Association for Sport and Physical Education, 2002) and the potential for long-term health benefits (Corbin et al., 1994).

Staff could see the value and need for structured activities with adult interaction. This view is supported by the research of Taggart and Keegan (1997) and guidelines from the National Association for Sport and Physical Education (2002). Adult interaction has been shown to increase the length of time children spend in active play and movement skill practice. Whilst staff, and centre planning documents, acknowledged the importance of structured physical activity, staff members were concerned about their ability to provide those opportunities. In particular, they mentioned a lack of confidence, ideas, and competence as barriers. Established guidelines (National Association for Sport and Physical Education, 2002) indicate that “individuals responsible for the well-being of preschoolers should be aware of the importance of physical activity and facilitate the child’s movement skills” (p.11). A lack of confidence was manifested in some child care workers by their call for specialists to deliver programs. While the provision of programs via an external specialist may provide a short term solution, it does not build capacity within the organization. Staff that acquire knowledge and skills are better able to meet the daily needs of children in their care through facilitating appropriate physical activity experiences and acting as role models. Towards this end, most staff felt that workshops, training, and resources would be valuable. Such training could be particularly valuable to address the notable absence of suitable bat and ball activities.

Aspects of the physical and social environments were considered barriers. Staff were concerned about the spaces available for active play, particularly when younger children were in those environments or when the weather was inclement. All centres had rules that restricted running, riding, climbing, and throwing activities indoors. Therefore on the days where outdoor time was restricted it is expected that gross motor activities would be limited. Outdoor play has been associated with higher levels of physical and gross motor activity (Deal, 1993; Klesges et al., 1990). Staff indicated that on some days outdoor activity may be limited to 10 minutes at best, which means that alternative strategies for indoor gross motor activity need to be implemented. Staff mentioned that they would value new physical activity ideas; and potentially these could include safe and suitable activities for throwing, catching, and kicking both inside and outside.

Childcare workers have a significant role to play in the provision of physical activity opportunities for children in care. Participants in this study displayed a strong desire to develop competencies in this area. Clearly the results of the study present a strong rationale for developing resources and training that assist childcare workers overcome barriers and foster physical activity for children in care.
References

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