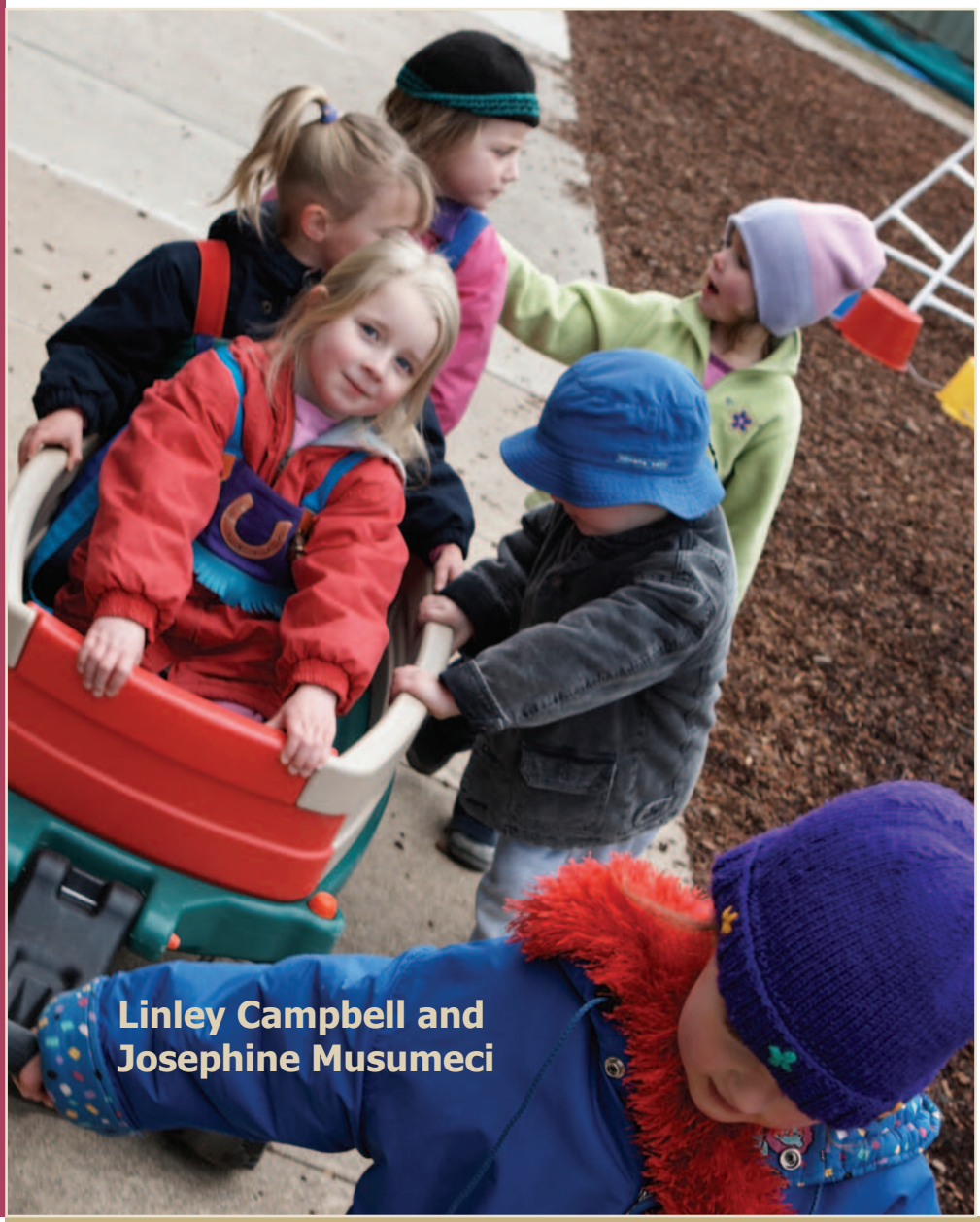
# Active children:
## Healthy now and later



**Linley Campbell and Josephine Musumeci**

www.earlychildhoodaustralia.org.au

Early Childhood AUSTRALIA INC. ... voice for young children

## About Early Childhood Australia

Early Childhood Australia, formerly the Australian Early Childhood Association, actively promotes the provision of high quality services for all young children from birth to eight years and their families, and supports the important role of parents. Early Childhood Australia is also the national umbrella organisation for children's services and a leading early childhood publisher.

## About the Research in Practice Series

The Research in Practice Series is published four times each year by Early Childhood Australia.

The series aims to provide practical, easy to read, up-to-date information and support to a growing national readership of early childhood workers. The books bring together the best information available on wide-ranging topics and are an ideal resource for children's services workers and others interested in the care and education of young children.

## Reviewers during 2005

Alice Brown, Marilyn Fleer, Wendy Marti, Mary Minchin, Carmel Richardson, June Slee, South Australian Curriculum Officers.

## Invitation to Authors

If you are interested in writing for the Research in Practice Series or any other Early Childhood Australia publication, please contact the Publications Section for further information on the preparation of manuscripts and for a copy of the guidelines for contributors.

## Membership, subscription & advertising inquiries:

Early Childhood Australia Inc.
PO Box 7105 Watson ACT 2602
Tel: (02) 6242 1800
Fax: (02) 6242 1818
Sales line (toll free): 1800 356 900
Email: eca@earlychildhood.org.au

Series Editor — Sue Wales

Edition Editor — Pam Winter

Publishing & Marketing — Kipley Nink, David Kingwell, Amanda McDonald

Graphic Design — Claire Connelly

Cover Photograph — Andrew Sikorski

Photos — P. Mason, A. Sikorski



Registered for posting as a publication—
PP232100/00036
ISSN 1440-5148
ISBN 09751936-5-1

Printed by Goanna, Canberra

# Contents

## About the authors:

### Linley Campbell

Linley has lectured in the early childhood and primary programs at Edith Cowan University for the past 30 years. A life-long involvement in the sport of calisthenics as a participant, coach and now National Director of Adjudicating, has enabled her to participate in the practical development of children's movement experiences. Her own love of physical activity stems from a childhood rich in movement experiences, a passion she has endeavoured to share with pre-service teachers. Linley hopes that the knowledge, skills and creative opportunities she offers her students will help them to develop children's enjoyment of movement and movement competence.

### Josephine Musumeci

Josephine has combined her love of children and her love of writing with qualifications in early childhood teaching and in librarianship. With teaching experience in government and private early childhood programs, Josephine has translated her knowledge of early childhood into other fields, co-producing a children's TV production, tutoring pre-service students and workshopping with child care professionals. The editor of a national early childhood magazine, Josephine has developed resources to support carers in the field, including the baby and toddler resource books *Move baby move* and *Active alphabet,* commissioned as part of The Get Active Queensland Children and Young People strategy.

## Introduction

It is evident from observing young children that they have an insatiable curiosity, abundant energy and a desire to move. These natural characteristics predispose children from birth to seek out a range of sensory stimulations necessary for normal and healthy development. Children need to be able to explore a stimulating environment if they are to realise their full potential (Mathews, 2001).

Many authors have outlined the benefits of movement exploration and physical activity to a child's development. Hannaford (1995) highlighted the importance of early movement experiences on healthy brain development stemming from the stimulation of neural synapses. More recently, Gallahue and Donnelly (2003) indicated that such experiences provide children with the opportunity to develop their fundamental movement skills. Developing proficiency in these skills, as well as a positive outlook and attitude to movement, enables children to engage more successfully in a variety of physical activities throughout life. Pica (2004) has reiterated the impact of movement on children's physical, social/emotional and cognitive development. She says children should be allowed and encouraged to move to enable the development of skills, fitness, self-confidence, self-discovery and cooperation.

Movement has a multi-faceted role to play in children's development. Nothing is more important than the feelings and thoughts that are developed as they experience the sensations of movement and discover the various ways in which their body moves. According to Davies (2003), movement experiences are inextricably linked with thinking and feeling. When observing children at play, their delight is obvious as they experience, practise and master new skills. For example, learning to walk unaided across a bench for the first time not only brings children a sense of pleasure and excitement but also the knowledge that they control this action. It is these feelings and thoughts which promote dispositions that make children want to be active.

While educators recognise the significant role of movement in the lives of young children, they are currently being confronted by a dramatic increase in the levels of childhood obesity. The Australian Society for the Study of Obesity (2005) reports that the number of overweight and obese children in Australia more than doubled between 1985 and 1995. A South Australian study reveals data that suggests obesity may begin at preschool. From 1995 to 2002, the proportion of overweight and obese four-year-old children increased from 12.9% to 21.5% for females, and from 10.6% to 18.4% for males (Tennant, Hetzel & Glover, 2003). According to McLennan (2004), over 20 per cent of Australian children are overweight or obese with similar trends being shown in most developed countries. If, as predicted by the Australian Institute of Health and Welfare (2005), childhood obesity continues to increase in this country at its current annual rate of one per cent, by the year 2025 more than half of the nation's children will be overweight.

## What happens if children aren't very active?

Inactivity during childhood is currently considered as a significant health risk as it may lead to obesity. McLennan (2004) listed many factors that are responsible for the increase in overweight and obese children. One of the most significant relates to the imbalance between energy intake and energy expenditure. Children's intake of energy-rich foods has been gradually increasing (Magarey, Daniels & Boulton, 2001), and many of the foods marketed for children are high in calories (Zuppa, Morton & Metha, 2003).

The Australian Institute of Health and Welfare (AIHW) (2004), reports that obese children are at increased risk of developing the precursors to cardiovascular disease, including high blood pressure and elevated cholesterol levels. Baur (2004) highlights further complications, including metabolic, orthopaedic, sleep, respiratory, gastrointestinal and psychosocial problems. Of growing concern is the recent AIHW (2005) report that acknowledges the rise in Type 2 diabetes in Australian children. Earlier research by Must and Strauss (1999) asserted that most organs of the body are harmed by childhood obesity and there is now overwhelming evidence of a high correlation between children who are overweight and obese and the continuation of these problems into adulthood. The indication is that, once established, these problems are very difficult to reverse (Dietz, 1998; Waters & Bauer, 2002; Goodman et al., 2002; Australian Society for the Study of Obesity, 2005).

Clearly, the research focus to date has been on the effects of childhood obesity on physical health. However, Heuttig et al., (2004) have raised concerns about the impact of obesity on children's psychological and emotional wellbeing because of the 'visible' nature of this condition. Their concerns follow those of Krahnstoever and Birch (2001) who found obese children often showed lower levels of self-esteem, while Dietz (1998), found negative stereotyping and discrimination of obese children by their peers. With evidence linking childhood obesity to physical, mental and social risks, it is not surprising that governments and health agencies globally are striving to find preventative strategies to address what has generally become referred to as an 'obesity epidemic'.

## Why have children's activity levels declined?

Recent research suggests a number of reasons for the decline in the children's activity levels. The World Health Organization (WHO) (2003) asserts that environmental factors have an impact on physical activity levels, and identifies a lack of parks, recreational facilities and sidewalks as issues that need addressing by urban planners in the struggle against obesity. Parental concerns for their children's safety when accessing such facilities are also recognised as a factor impacting on children's activity levels (AIHW, 2005; Molnar et al., 2004). Children's access to outdoor play spaces is further reduced as the density of housing developments increases and many backyards become smaller. Similarly, as traffic levels increase, the accessibility of public open spaces for children to play in an unstructured way has also been compromised, as has their opportunity to be able to ride or walk to school in many instances. Recent evidence affirms that Australian children are not walking or cycling to the same extent as previous generations (Harten & Olds, 2004).

McLennan's (2004) belief is that the inability of some children to burn off extra calories is due to their increasingly sedentary lifestyle. In recent times, children have listed watching television and playing games on computers as popular pastimes (Australian Bureau of Statistics, 2001), and the use of this technology has been given as a reason for children's decreased activity levels and their increased risk of obesity (Faith et al., 2001).

In the case of much younger children, increasingly sophisticated commerce and marketing techniques have led to the prevalence of various baby products (e.g. seats, swings and bouncers), the misuse of which has the potential to further restrict children's physical activity and exploration of a wider play environment. According to Pica (2000), 'containerized kids' describes infants who spend more than 60 waking hours per week confined within such products.

The above factors indicate potential reasons why children's activity levels have declined. Other reasons deserving investigation may relate to the overcrowded school curriculum, the increasing use of computers in classrooms and the call for improvements in children's literacy and numeracy. Furthermore, have safety concerns and fears of litigation led to the banning of particular school games and use of playground equipment?

There is a specific need to investigate the physical activity levels of children under eight years of age. Most of the information gathered so far has come from studying older children (Hands, Parker & Larkin, 2001). A positive step in redressing this imbalance is the Australian Government initiative of a *National Public Health Action Plan for Children 2005–2008*. This public health partnership of national, state and territory health departments is aimed at strengthening and promoting children's health across Australia, and may produce valuable information in this area.

## Physical activity recommendations and principles for children

Physical activity has been globally recognised as a significant protective factor in promoting health and reducing obesity (National Public Health Partnership, 2004; WHO, 2003). Early childhood practitioners need to be aware of any informed recommendations that relate to the provision of physical activity in the early years. The Australian Government's *Physical Activity Recommendations For 5–12 Year Olds* advocates at least 60 minutes of daily activity of moderate to vigorous intensity. Furthermore, children should not spend more than two hours a day engaged in sedentary activities such as watching television or using computers (Department of Health and Ageing, 2004). In the U.S.A, the *Early Childhood Physical Activity Guidelines,* designed specifically for infants, toddlers and preschoolers by the National Association for Sport and Physical Education (NASPE) (2002), are testament to the importance placed by early childhood professionals, movement specialists and health care experts on promoting physical activity. These guidelines are presented in the Appendix (Tables 1 and 2).

Together, these physical activity recommendations and guidelines provide a valuable starting point for early childhood practitioners and parents. However, additional practices should be considered if children are to gain the health benefits offered by physical activity. These practices, when combined with the recommendations and guidelines noted above, provide a powerful means for helping to sustain children's physical activity habits. They include:

- **Make physical activity 'play-like':**

  Children associate play with fun, spontaneity, interacting with friends, and low levels of competition and aggression (MacDougall, Schiller & Darbyshire, 2004). Adults need to find ways of incorporating these attributes when planning to increase children's participation in physical activity. Physical activity should be fun, and children should be involved in the choice of, and decision-making about, the activities.

- **Make physical activity success-oriented:**

  When children experience success in movement they are more likely to want to continue their participation. Success is linked to feelings of competency and self-esteem and is a key element in nurturing children's love of moving (Pica, 2004; Sayre & Gallagher, 2001).

- **Support children's physical activities:**

  Young children love to move. However, a number of factors relating to growth, development, maturation and learning may turn some children into avoiders of physical activity (Sayre & Gallagher, 2001). By exposing children to physical activity, helping them to develop their fundamental movement skills, and acknowledging their efforts, parents and early childhood practitioners can motivate children to continue to be active.

  To help children develop motor competency, provide a range of movement-based learning experiences including active indoor and outdoor play, games, rhythmical activities and opportunities to explore and create movements of their own. Where possible, involve the children in planning these activities and make the environment visually appealing (Hands & Martin, 2003).

- **Introduce strategies to increase physical activity throughout the day:**

  The accumulation of physical activity throughout the day is now an accepted means of achieving the recommended daily levels (Department of Health and Ageing, 2004). Physical activity should not be confined to outdoor play and physical education sessions. It needs to be woven into daily programs and routines whether in the home, child care centre or classroom.

- **Use role-modelling:**

  Children spend many hours with adults, and it is through a combination of instruction, incidental learning and modelling that they acquire many of their health practices and attitudes (Marotz, Cross & Rush, 2005). Parents and practitioners need to show children that they enjoy and value being physically active. They need to interact, monitor and/or supervise children in an active way.

- **Adopt a partnership approach:**

  Parents, early childhood practitioners and the community need to work together to promote children's participation in physical activity. Interaction and cooperation among these three stakeholders is recognised as important in assisting children to achieve a healthy lifestyle (Sayre & Gallagher 2001). This can be achieved through communication and the sharing of information. For example, parents may keep early childhood practitioners and community agencies informed of their children's physical activity interests and needs. Teachers may encourage parent involvement in school physical activity programs, while community agencies may circulate information regarding their facilities and physical activity programs available for children. A partnership approach may prove effective in increasing children's physical activity levels and their continued enjoyment of such activities.

## Physical activity ideas for children birth to two years

Children in this age group achieve major developmental milestones. They progress from being babies with no control of voluntary movement to children who are very mobile and extremely active. Moving and interacting with people and objects, with a minimum of time spent in restrictive situations such as playpens, high chairs, bouncing seats and harnesses (Gallagher, 2005) facilitates this progression.

### Young infants

Long before babies are able to move independently, the parent or carer's role is to be a 'baby mover'. The following activities are designed to stimulate babies' movement and exploration of their environment.

- Allow babies to experience gentle movement in as many ways as possible by carrying, cuddling and rocking. Depending on temperament, some babies enjoy more robust movement which may include a 'pendulum swing' or 'playing aeroplanes'.
- Give babies every opportunity to explore their environment by reaching, holding, touching and tasting. Play time on tummies (prone), with a carer close by, allows babies to hold, touch or bat objects which differ in texture, shape and size. Provide opportunities for babies to explore different toys (stationary and moving), experience different surfaces, and engage in reaching activities which require use of both sides of the body.
- Involve babies in pulling and pushing games with toys and everyday items including balls, plastic wheeled toys, plastic bottles filled with sand (with tops glued on tight) and sealed tins filled with dried beans.
- Accommodate babies' need for unrestricted movement of arms, legs and body. Eye-catching, coloured booties on the feet encourages kicking while an opportunity to kick in sand, water or against an adult-size beanbag provides different sensations, and stimulates interest and perseverance. Holding a toy over the baby's head and moving it from side to side encourages the baby to follow the movement with eyes and head and perhaps the body.
- Sing movement songs, use movement words, and join in the movements. For example, try clapping, swinging, bouncing, jumping and hopping.
- Help babies strengthen their back and neck muscles by letting them spend some time in a sitting position—sitting on a lap or propped up with a 'boomerang' cushion.
- Help babies to develop self-awareness through games such as 'Peek-a-boo', 'Round and round the garden' and simple toy-hiding games.

## Older infants and young toddlers

Older babies are independently mobile, and keen to get into everything! They are great explorers of their bodies and their environment. The more they are able to explore what their bodies can do, and the more experiences they have of moving in different ways, the more adept they will later become at sophisticated tasks. These early experiences are important for developing balance, motor control and sensory development (Sutterby & Thornton, 2005). Parents and caregivers need to be sensitive to individual babies' movement preferences and to support the babies' efforts by taking playtime to the limit set by the baby.

- Older babies generally enjoy more vigorous games. 'Fly' these babies around the room and let them experience the joys of a baby bird, or give them a piggyback ride (smooth or bumpy—let them choose!).
- In the park, playground or backyard, sit these babies on your lap and have a swing or slide together. Support them while they slide on their own. Spin them gently around and up and down.
- Stimulate sensory development by allowing older babies to sit, crawl or walk on different surfaces including grass, dirt, smooth stones, wet grass, mud or sand.
- Challenge babies' developing mobility by providing stacks of large cushions and cardboard boxes which give them the opportunity to climb safely, to explore tunnels, and to crawl over these various objects. Play chasing and following games, and hide toys for them to find.
- Provide opportunities for pushing, pulling and riding play. Push/pull toys, which make different sounds, are a great source of entertainment. They develop balance and require lots of energy! Ride-on cars which baby can push forward with their feet are great fun and a precursor to pedal power.
- Action songs are wonderful invitations to play for the more mobile baby. Songs that involve clapping (e.g. 'Pat-a-cake'), different arm actions (e.g. 'Wheels on the bus'), and identifying body parts (e.g. 'Hokey pokey'), promote coordinated movement.
- Encourage arm and leg actions and see them as early attempts at throwing and kicking. Put a tennis ball in the toe of a long sock, secure it with a rubber band, and let baby explore the movement possibilities. Gently kick a soft ball to baby so that it stops at their feet. If you have modelled kicking, baby may attempt to kick it back.
- Any activity that produces sounds is very appealing and encourages repetition and movement. Musical toys such as a ball with a bell inside, a xylophone or a tambourine are fun. Be on the look out for everyday items that make sounds—musical or not! Some examples are a key ring with lots of keys, kitchen utensils such as wooden spoons, cake tins and small saucepan lids. Tightly-sealed plastic bottles (or sturdy cardboard tubes) filled with rice or dried beans make good rattles.

- Music opens up an area of movement that is quite special. Play games of dancing and 'freezing' when the music stops, make a game of walking in a circle and sitting down when the music stops, or show baby how to beat or clap in time to a simple song or rhyme. Your enjoyment and participation may be mirrored by the baby.

- Simple toys and equipment will provide toddlers with opportunities to extend their range of movement experiences and to enjoy the feelings of being 'on the move'. Some examples are toy cars, trucks and trains; baby doll strollers; push and pull toys; ride-on cars; tricycles; hammer toys; stacking or nesting toys; spinning tops; lots of different balls including soccer and footballs; beanbags; a slide; large cardboard boxes; big cushions; sand and water and coloured chalk on a path or patio (Cooke, 2003).

One of the greatest motivating forces for toddlers as they become more mobile is their drive for autonomy—'I do it myself!' The infamous 'no' associated with the older toddler is really an expression of the child's need to investigate, experiment, extend and explore. Adults have a responsibility to keep the child safe and to accommodate the very active toddler within the everyday routine of life. The adult's role is two-fold serving as the child's protector but also as a facilitator. This involves making the environment as safe as possible and being alert to potential dangers, while at the same time providing equipment and opportunities that allow these young children to do things for themselves. We challenge them to develop and extend their abilities through ongoing, everyday interactions.

## Physical activity ideas for children three to five years

Children in this age group are rapidly extending their developing movement skills and becoming more confident movers. Accessibility to a range of movement experiences, including indoor and outdoor activities, will promote their physical activity levels.

## Indoor play activities

The following activities have been included to ensure that children's opportunities for physical activity are not limited by inaccessibility to outdoor play spaces or by weather considered to be either too hot or too cold for outside participation. The activities encourage children to be physically active while providing them with opportunities to practise their fundamental movement skills.

### Game: 'Pick a card'

This game can be played with any number of children. You will need an open play space and music of some kind (singing it yourself is fine). Prepare a set of action word cards or picture cards (approximately A4 size). For example, action words such as *run, jump, crawl, hop* would be appropriate, as would pictures of people dancing, skating, rowing a boat, and pictures of cars, trains, planes, birds, animals. Place the cards in a pile in an accessible place. Children move freely to the music and 'freeze' when the music stops. At this point, choose a child to select a card from the pile. The card is held up for others to see. All children then perform the actions to match the word or picture selected. When ready, repeat the game.

### Play with small equipment

**Scarf play:** Small, light scarves (approximately 30cm by 30cm), can be manipulated in various ways by this age group. The scarves can be thrown up into the air and caught in their hands or on other parts of their body. They can be moved in time to music, making patterns around the child's body. Scarves also open up the possibility for more imaginative physical play (e.g. tie them around the neck to become a cowboy who gallops around the room; tie them around the wrist to become a hula dancer; tie them around the forehead to become a rap dancer; tie them around the ankle to perform an African dance).

**Small parachute play:** A bedsheet or large piece of material can substitute for a parachute. Have the children stand around the 'chute'/material and lift and lower it together. Let the children use different travelling actions to pass under and around the 'chute' (e.g. crawl, walk, hop, gallop, tiptoe).

**Balloon play:** The slow-moving nature of balloons make them easy to track for this age group. Hit or throw the balloons up and catch them. See how long children can keep a balloon in the air before it touches the floor.

**Skittles:** Using plastic skittles or plastic milk bottles half-filled with sand, roll a ball to see how many skittles can be bowled over.

**Underarm throw:** Using plastic containers of various sizes and a soft ball or beanbag, practise underarm throwing into the containers. Try varying the distances, body position etc.

**Cardboard boxes and hoops:** These can be used together with challenges such as, 'Can you balance inside/outside the object?'; 'Can you have half of your body inside the hoop and half outside?'; 'Can you show a twisted shape inside your hoop?'; 'Can you make yourself the same shape as the box?'; 'Try making a high/low shape next to the box'.

**Ball play:** Use balls made from foam, wool or newspaper (the latter wrapped in plastic to prevent newsprint from dirtying little hands; use masking tape to secure the plastic). Play simple passing, throwing and catching games.

**String, streamers or rope:** Let the children place these on the floor in different patterns. Can they balance/walk along/between them—forward, backward, sideways?

**Treasure hunts:** Hide different objects. Have fun finding them together.

### Partner activities

Have pairs of children sit facing each other, legs astride and hands joined, so they can pull each other forward and backward. Little ones enjoy singing to this rhythmical game (e.g. 'See-saw Marjorie Daw' or 'Row, row, row your boat').

## Outdoor play activities

**Kites:** Children make kites or are given streamers to take outside to test their flying techniques. Children experiment by walking and running with their kites. In pairs, they can try catching their partner's streamer.

**Bubbles:** Help the children to make soap bubbles. Encourage them to chase and catch the bubbles.

**Various walks:** Around the home, in the school grounds, at the park.

**Game: 'I can see'**

Children are freely spaced. Caregiver/teacher calls out 'I can see'. In chorus, the children respond, 'What can you see?' The adult then calls out what they can 'see' (e.g. 'I can see a plane flying high and low', '... a big brown bear looking for food', '... a little sports car travelling along the road'). The children then imitate what the adult calls out.

**Game: 'This is what I can do'**

Children are freely spaced. Adult sings: 'This is what I can do, see if you can do it too', at the same time performing an action with their body. The song is repeated, with the children copying the actions. With practice, children will be able to lead this game.

## Physical activity ideas for children six to eight years

Children in this age group require plenty of opportunity to practise and perfect their fundamental movement skills through a variety of movement experiences. Their physical activity levels can be increased during these learning experiences if maximum participation is encouraged. For example, have sufficient equipment, keep group sizes small to reduce waiting time, avoid the use of elimination games, and individualise activities to ensure success and keep children interested and active.

**Game: 'Spin the hoop'**

This game enables children to practise throwing and catching, or kicking and trapping a ball. The children stand in pairs, facing their partner, with one ball per pair. The teacher designates a skill, then spins a hoop. The children count how many times they can repeat the designated skill before the hoop stops spinning and the teacher calls 'stop'. This game could be adapted for use with other skills as well as for individual practice.

**Movement challenges**

Have two beanbags (or other markers) per child. The children are freely spaced. They lie on the ground and place one beanbag level with their feet, the other level with their head. They then stand up, level with one of their beanbags, and attempt to hop, jump or leap to reach the other beanbag. The challenge is to hop/jump/leap their height. It can be tried from a stationary, position or with a 'run-up'.

**Dance and rhythm activities**

Children enjoy creating dances to their favourite music. Encourage them to create 'Funky body' or 'Travelling' dances to develop body awareness and locomotor skills.

**Partner and small group activities**

**Making bridges:** Each child has a partner. One child kneels on all fours, making a 'bridge' with their body. Their partner experiments with different ways of moving under the 'bridge'. ('Try leading with your head/feet', 'Try moving under the bridge with your body facing down/facing up'). Partners then change positions.

**Making pictures:** In groups of three or four, children make a picture together with their bodies. Groups see if they can guess each other's picture.

## Conclusion

There is growing evidence that effective strategies are urgently needed to address childhood obesity and many of its associated medical conditions. Childhood obesity is complex and no one solution is going to solve the problem. Current research is revealing that physical activity can protect against a range of lifestyle diseases and illnesses. Consequently, parents and early childhood practitioners need to adopt guidelines and practices which encourage children of all ages to be physically active. Most importantly, ways need to be found to help children maintain their love of movement while developing an understanding of the value of physical activity to their long-term health and wellbeing.

## References


Australian Bureau of Statistics (ABS) (2001). *Children's participation in cultural and leisure pursuits.* Australia. Cat. No. 4901.0. Canberra: Author.

Australian Institute of Health and Welfare (AIHW) (2004). *Heart, stroke and vascular diseases—Australian facts 2004*. AIHW Cat. No. CVD27. Canberra: Author and National Heart Foundation of Australia (Cardiovascular Disease Series No. 22).

Australian Institute of Health and Welfare (AIHW) (2005). *A picture of Australia's children.* AIHW Cat. No. PHE58. Canberra: Author.

Australian Society for the Study of Obesity (2005). *Fast facts—ASSO.* Retrieved 15 September 2005, http://www.asso.org.au/home/quicklinks/fastfacts.

Baur, L. S. (2004). The epidemic of childhood obesity: What role do schools play in primary prevention? *Nutrition and Dietetics, 61*(3), 134-135.

Cooke, K. (2003). *Kid wrangling: The real guide to caring for babies, toddlers and preschoolers.* Camberwell, Victoria: Viking.

Davies, M. (2003). *Movement and dance in early childhood*. (2nd edn). London: Paul Chapman.

Department of Health and Aging (2004). *Australia's physical activity recommendations for 5–12 year olds.* Canberra: Author.

Dietz, W. (1998). Health consequences of obesity in youth: Childhood predictors of adult disease. *Pediatrics, 101*(3), 518-525.

Faith, M. S., Berman, N., Heo, M., Pietrobelli, A., Gallagher, D., Epstein, L. H., Eiden, M. T. & Allison, D. B. (20001). Effects of contingent television on physical activity and television viewing in obese children. *Pediatrics. 107*, 1043–1048.

Gallagher, K. C. (2005). Brain research and early childhood development: A primer for developmentally appropriate practice. *Young Children, 60*(4), 12-20.

Gallahue, D. L., & Donnelly, F. C. (2003). *Developmental physical education for all children.* Champaign, IL: Human Kinetics.

Goodman, S., Lewis, P. R., Dixon, A. J. & Travers, C. A. (2002). *Childhood obesity: Of growing urgency*. Retrieved 15 January 2005 http://www.mja.com.au/public/issues/176_08_150402/goodman_letter.html

Hannaford, C. (1995). *Smart moves: Why learning is not all in your head.* Alington, VA: Great Ocean.

Hands, B., & Martin, M. (2003). Fundamental movement skills: Children's perspectives. *Australian Journal of Early Childhood, 28*(4), 47-51.

Hands, B., Parker, H. E., & Larkin, D. (2001). Building an active future summit: Background paper. Perth: University of Notre Dame Press.

Harten, N., & Olds, T. (2004). Patterns of active transport in 11–12 year old Australian children. *Australian and New Zealand Journal of Public Health, 28*(2), 167-172.

Heuttig, C. I., Sanborn, C. F., DiMarco, N., Popejoy, A., & Rich, S. (2004). The O generation. Our youngest children are at risk for obesity. *Young Children, 59*(2), 50-55.

Krahnstoever, D. K., & Birch, L. (2001). Weight status, parent reaction, and self-concept in five-year-old girls. *Pediatrics, 107*(1), 46-53.

MacDougall, C., Schiller, W., & Darbyshire, P. (2004). We have to live in the future. *Early Childhood Development and Care, 174*(4). 369-387.

McLennan, J. (2004). Obesity in children. *Australian Family Physician, 33*(1/2), 33-36.

Magarey, A., Daniels, L., & Boulton, T. (2001). Prevalence of overweight and obesity in Australian children and adolescents: Reassessment of 1985 and 1995 data against new standard international definitions. *Medical Journal of Australia, 174*(11), 561-564.

Marotz, L. R., Cross, M., & Rush, J. M. (2005). *Health, safety and nutrition for the young child.* (6th edn). Clifton Park, NY: Thomson Delmar Learning.

Mathews, C. (2001). *Healthy children: A guide for child care*. NSW: MacLennan & Petty.

Molnar, B. E., Gortmaker, S. L., Bull, F. C., & Buka, S. L. (2004). Unsafe to play? Neighbourhood disorder and lack of safety predict reduced physical activity among urban children and adolescents. *American Journal of Health Promotion, 18*(5), 378-386.

Must, A., & Strauss, R. (1999). Risks and consequences of childhood and adolescent obesity. *International Journal of Obesity and Related Metabolic Disorders, 23* (Supp2), S2-11.

National Public Health Partnership (2004). Healthy children—Strengthening promotion and prevention across Australia: Developing a national public health action plan for children 2005–2008. Consultation paper. Melbourne: Author.

National Association for Sport and Physical Education (2002). *Active start: A statement of physical activity guidelines for children birth to five years.* Reston, VA: Author.

Pica, R. (2000). *Movement and infants*. Retrieved 15 September 2005 http://www.webhealthcare.com/general/child_care_inf_movement.asp

Pica, R. (2004). *Experiences in movement: Birth to age 8*. (3rd edn). New York: Delmar Learning.

Sayre, N. E., & Gallagher, J. D. (2001). *The young child and the environment: Issues related to health, nutrition, safety and physical activity.* Needham Heights, MA: Allyn and Bacon.

Sutterby, J. A., & Thornton, C. D. (2005). Just happen! Essential contributions for playgrounds. *Young Children, 60*(3), 26-33.

Tennant, S., Hetzel, D., & Glover, J. (2003). *A social health atlas of young South Australians* (2nd edn). Adelaide: Public Health Development Unit.

Waters, F. B., & Baur, L. A. (2002). *Childhood obesity: Modernity's scourge.* Retrieved 15th January 2005. http://www.mja.com.au/public/issues/178_09_050503/wat10857_fm-2.html

World Health Organization (2003). *Health and development through physical activity and sport*. Geneva: Author.

Zuppa, J. A., Morton, H., & Metha, K. P. (2003). Television food advertising: Counterproductive to children's health? A content analysis using the Australian Guide to Healthy Eating. *Nutrition & Dietetics, 60:* 78-84.

## Physical activity resources for early childhood

Borushek, A., & Landy, J. (2005). *SNACK education kit: School nutrition and physical activity curriculum for kids*. Nedlands, WA: Family Health Network.

Campbell, L. (2001). *FUNdamental movement in early childhood.* Canberra: Australian Early Childhood Association.

Department of Education (2001). *Fundamental movement skills resource package*. Perth: Edith Cowan University Resources for Learning.

Department of Innovation and Information, Economy, Sport and Recreation Queensland (2003). *Move baby move.* Brisbane: Author.

Landy, J., & Burridge, K. (2002). *Kids with zip: A practical resource for promoting active children 3–12.* NSW: Prentice Hall.

NSW Department of Education and Training (2002). *Get skilled: Get active.* NSW: Author.

# Appendix

Early Childhood Physical Activity Guidelines for infants, toddlers and preschoolers by the National Association for Sport & Physical Education (NASPE).

## Table 1: Physical activity guidelines for infants

| | |
|---|---|
| Guideline 1 | Infants should interact with parents and/or caregivers in daily physical activities that are dedicated to promoting the exploration of their environment. |
| Guideline 2 | Infants should be placed in safe settings that facilitate physical activity and do not restrict movement for prolonged periods of time. |
| Guideline 3 | Infants' physical activity should promote the development of movement skills. |
| Guideline 4 | Infants should have an environment that meets or exceeds recommended safety standards for performing large muscle groups. |
| Guideline 5 | Individuals responsible for the well-being of infants should be aware of the importance of physical activity and facilitate the child's movement skills. |

## Table 2: Guidelines for toddlers and preschoolers

| | |
|---|---|
| Guideline 1 | Toddlers should accumulate at least 30 minutes daily of structured physical activity; preschoolers at least 60 minutes. |
| Guideline 2 | Toddlers and 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. |
| Guideline 3 | Toddlers should develop movement skills that are building blocks for more complex movement tasks; preschoolers should develop competence in movement skills that are building blocks for more complex movement tasks. |
| Guideline 4 | Toddlers and preschoolers should have indoor and outdoor areas that meet or exceed recommended safety standards for performing large muscle skills. |
| Guideline 5 | Individuals responsible for the well-being of toddlers and preschoolers should be aware of the importance of physical activity and facilitate the child's movement skills. |

National Association for Sport & Physical Education (NASPE), 2002, pp. 9-11.

## Active children: Healthy now and later

Current research is revealing that physical activity can protect against a range of lifestyle diseases and illnesses. Consequently, early childhood practitioners and parents need to adopt guidelines and practices which encourage children of all ages to be physically active.

In *Active children: Healthy now and later,* authors Linley Campbell and Josephine Musumeci explore how to encourage children to develop and maintain a love of movement, for example through options that allow choice and incorporate play, so having fun is emphasised. This book also includes suggestions for activities and games for each age group from birth to eight years old, to get everyone moving.



Early Childhood AUSTRALIA INC.
... voice for young children

Research in Practice Series
Early Childhood Australia
PO Box 7105 Watson ACT 2602
T: 02 6242 1800 F: 02 6242 1818
Email: eca@earlychildhood.org.au

Volume.12 No.4 2005
ISBN 0-9751936-5-1
9 780975 193655