

**Sit Less, Move More, Sleep Well**

**Active Play  
Guidelines  
for Under-fives**

Citation: Ministry of Health. 2017. *Sit Less, Move More, Sleep Well: Active play guidelines for under-fives*. Wellington: Ministry of Health.

Published in May 2017  
by the Ministry of Health  
PO Box 5013, Wellington 6145, New Zealand

ISBN 978-1-98-850249-6 (print)  
ISBN 978-1-98-850250-2 (online)  
HP 6598

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[health.govt.nz](http://health.govt.nz)



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# Foreword

**One of the key roles of the Director of Public Health is to provide clear, consistent, evidence-based policy advice to the Government, the health sector and the public. The advice needs to address the issues of the day and be supported by the latest research evidence and expert opinion.**

Active play during the first five years of life is essential to the health and future wellbeing of children. It is so important it is recognised under the United Nations Convention on the Rights of the Child.

Sitting less, moving more and sleeping well are important for healthy weight gain, mental health, behaviour, improved movement, competence skills and brain development including communication skills, higher emotional and social functioning, and the ability to make good decisions. It is vital for the development of physical movement skills that will provide a platform for learning more complicated skills in the future.

The Ministry of Health is releasing *Sit Less, Move More, Sleep Well: Active play guidelines for under-fives* to support the work of health practitioners, regional sports trusts, early childhood education centres and others who provide physical activity advice to the public.

This document contains population health advice for New Zealand children under five years old, centred around key messages (the Guidelines) about the importance of under-fives sitting less, moving more and sleeping well. The Guidelines are our interpretation of the key international evidence for the New Zealand context, as outlined in the *Review of Physical Activity Guidance and Resources for Under-fives*, which was published online in April 2016.

We encourage health practitioners and others to use this information as the basis for helping children and their whānau as it contains a mix of evidence-based information, links to supporting information and provides practical ideas on how parents and whānau of under-fives could achieve the recommendations.

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# Acknowledgements

*Sit Less, Move More, Sleep Well: Active play guidelines for under-fives* was written by Martin Dutton, Senior Advisor Physical Activity at the Ministry of Health (the Ministry).

Input and peer review was provided by Elizabeth Aitken, Dr Harriette Carr, Grant McLean, Dr Hayden McRobbie, Diana O'Neill and Dr Janine Ryland from the Ministry; Penina Kenworthy, Karen Laurie and Scott MacKenzie from Sport New Zealand (Sport NZ); and Dr Mary-Ann Carter and Kate Rawson from the Health Promotion Agency (HPA).

The Ministry would like to acknowledge the valuable input from other internal and external stakeholders, who gave feedback on the draft issue-based document, and members of the Eating and Activity Guidelines Physical Activity Technical Advisory Group:

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# Introduction

## Purpose of these guidelines

*Sit Less, Move More, Sleep Well: Active play guidelines for under-fives* (the Guidelines) has been prepared as part of the Eating and Activity Guidelines series.

The Guidelines provide population health advice to support health practitioners, early childhood educators, regional sports trusts and others who provide advice to parents, caregivers and whānau or families on physical activity for children under five years of age. They:

- outline the updated recommendations for physical activity/active play and the reasons for the recommendations
- identify the underpinning international evidence
- suggest practical, low-cost activities that parents, caregivers and whānau or families can do with under-fives to assist the children's development.

The Guidelines are appropriate for all children under five years of age, regardless of gender, ethnicity, ability, location or the socioeconomic status of the child's home. Early childhood educators, parents, caregivers and whānau or families of under-fives should work together to support the children's healthy growth and development. Plenty of opportunities for regular play should be given that invite rather than compel participation, reduce sedentary behaviours where possible and ensure children develop good-quality sleep behaviours.

These Guidelines may also be appropriate for children with disabilities or medical conditions. However, they do not replace specific advice from health practitioners or physical activity specialists, which takes into account the health and/or social and developmental context of the child and their whānau or family.

The Guidelines and accompanying resources replace 11 of the 14 Active Movement resources developed in 2005 by SPARC (now Sport New Zealand, abbreviated to Sport NZ). Some of the Active Movement resources (relating to sun safety, massage/touch and songs/rhymes) have not been reviewed by the Ministry of Health (the Ministry). These resources were still available on Sport NZ's website at the time these Guidelines were released.

## Why moving is important for under-fives

From birth to five years of age, children experience a significant amount of physical, cognitive and socio-emotional development (Ministry of Education 2017; Winter 2010; Sport Wales 2014). Movement, through play, encourages this development and enables children to develop skills that will give them the confidence and competence to be physically active as they grow (Sport NZ 2015).

However, movement experiences in the early years need to be wider than just developing physical skills or learning competencies that allow the child to be involved in sports. Sport New Zealand's Physical Literacy Approach (having the motivation, confidence and competence to be physically active throughout life) suggests that under-fives require physical movement in everyday life environments, including nature, to encourage creativity, imagination and exploration (Sport NZ 2015).

## Play

Play is an essential way for children to be active and make sense of their world. It is vital in helping all children, including those with disabilities, to develop physical, social and emotional abilities, resilience and creativity (IPA 2015). Play also helps a child to relate to and communicate with others (Ginsburg 2007; AUT 2015).

Play is voluntary, instinctive, creative and adaptable, a universal behaviour, fun and performed for no external goal or reward (IPA 2014). Sport NZ has used this definition in its Principles of Play 2017.

Quality play can take many forms, such as rough and tumble, imaginative (make believe), locomotive (moving in all directions) and decision-making around risks and challenges. It includes children experiencing a mixture of adult-led activities and opportunities to be active without excessive adult interference, in a variety of environments.

The importance of play is internationally recognised under the United Nations *Convention on the Rights of the Child*, to which New Zealand is a signatory. Article 31 of that convention states: 'Parties recognise the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts' (OHCHR 1989).

Early childhood education has a crucial role to play in providing culturally responsive environments that encourage play in all under-fives. These Guidelines broadly align with the learning outcomes of Te Whāriki, the holistic curriculum from the Ministry of Education that guides early childhood education (Ministry of Education 2017).

## The evidence underpinning the Guidelines

These Guidelines are based on evidence identified in Allen and Clarke's *Review of Physical Activity Guidance and Resources for Under-Fives*<sup>1</sup> (Allen and Clarke 2016), which we refer to in this document as 'the Review', and advice from the Eating and Activity Guidelines Physical Activity Technical Advisory Group. The Review summarises what effect physical activity (including fundamental movement skills), sitting time and sleep have on a range of health outcomes for under-fives. It also makes comparisons with international guidelines, including from Australia, Canada, the United Kingdom, the United States of America, Ireland and the World Health Organization (WHO).

Physical activity research for under-fives is a fast-developing area but is still limited in some fields. The Ministry has supplemented the Review with additional research on the benefits of regular physical activity, reduced sitting time and good quality sleep in children over five years of age, where it is appropriate to generalise that research to the younger population group.

### Summary of evidence

Overall, the evidence confirms that regular physical activity, limited time spent sitting for prolonged periods (in front of or independent of screen-based entertainment) and an adequate amount of good-quality sleep are all independently associated with better short- and long-term health and wellbeing in under-fives (Allen and Clarke 2016). All three behaviours are also associated with a lower risk of overweight and obesity in children (Allen and Clarke 2016; Le Blanc et al 2012; Miller et al 2015; Taveras et al 2014). Sufficient regular physical activity improves children's ability to learn, as well as their mental health and wellbeing (Whitebread et al 2015).

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1 The Ministry contracted Allen and Clarke to complete the Review following an open tender process in 2015.

Although there is a small risk of accidental injury during play (Safekids 2015), there is good evidence that young children develop the ability to assess and mitigate the risk of falls and other serious injury when they are given the opportunity to experiment in a supervised environment that is within their physical capability. Moreover, habitual physical inactivity and sedentary behaviours in the early years can lead to poor health later in life (Department of Health UK 2011a, 2011b; Allen and Clarke 2016; Bundy et al 2009).

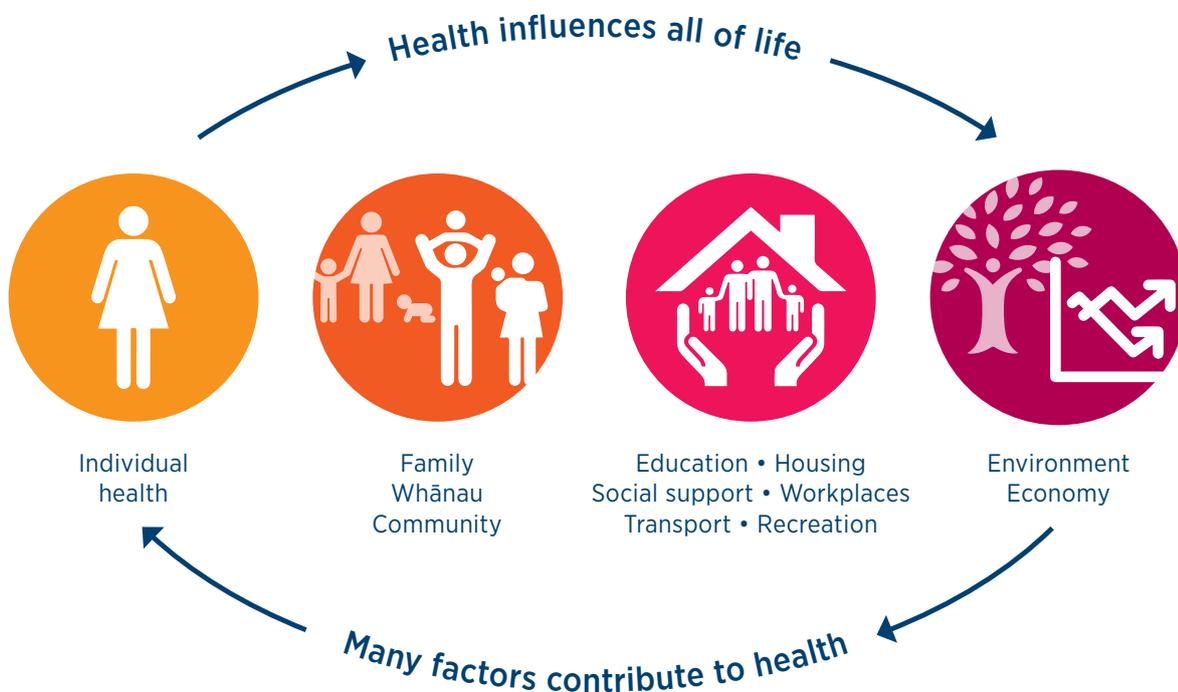
The review of research on children with physical disabilities or chronic medical and health conditions was outside the scope of the Review. However, evidence suggests that children with chronic health conditions or impairments are more likely than their peers to be physically inactive (USDHHS 2012). Caregivers of children in this population group should plan ways to encourage their participation and inclusion in play. This may include modifying the environment, activities or resources to encourage these children’s active participation.

## The New Zealand Health Strategy

The primary aim of the New Zealand Health Strategy is to ensure that all New Zealanders live well, stay well, get well (Ministry of Health 2016a). It aims to achieve equitable outcomes for all New Zealanders, recognising and respecting the principles of the Treaty of Waitangi (the Treaty) to ensure that traditional Māori activities and cultural practices survive and thrive.

Health equity is closely linked to the social determinants of health. For example, those who earn more can afford better quality housing, childcare, education, employment, food, services, play areas, physical activities and facilities and, as such, generally experience better health (see Figure 1). Social determinants of health are particularly important for under-fives, since a child’s access to these resources is known to impact their long-term health and wellbeing as an adult.

**Figure 1: Social determinants of health**



Ministry of Health 2016a

## Māori

Māori tend to have a holistic view of health and wellbeing, meaning that they look at the person not only as an individual but also more broadly in terms of their whānau, iwi and hapū (and recognising a strong connection with the environment) (Ministry of Health 2016b, 2016c). This holistic view means health providers should also think more broadly when suggesting activities to improve the health of under-fives. For example, considering how physical activity and sleep affect spiritual and mental health or how cultural pursuits (such as visiting marae or kapa haka) are, in themselves, beneficial for physical health and how doing these activities together can benefit the whānau.

He Korowai Oranga is the Ministry of Health's Māori Health Strategy. It provides the framework for the government and health sector to achieve the best health outcomes for Māori (Ministry of Health 2014a). The overall aim of He Korowai Oranga is pae ora – healthy futures (Ministry of Health 2016c).

Pae ora provides a platform for Māori to live with good health and wellbeing in an environment that supports a good quality of life. It is essential to the future wellbeing of under-fives. Pae ora builds on the foundations of mauri ora (healthy individuals), whānau ora (healthy families) and wai ora (healthy environments). These three elements of pae ora are interconnected, mutually reinforcing and relevant for all New Zealanders.

Pae ora is important in the context of these Guidelines because its concept of 'environment' (wai ora) represents many of the Guidelines' goals. The Ministry recognises that home/early childhood education and sleep environments all have a significant impact on the health and wellbeing of individuals, whānau and wider communities (Ministry of Health 2014a), and the natural environment offers an ideal place for exploration and play.

## Pacific peoples

*'Ala Mo'ui: Pathways to Pacific Health and Wellbeing 2014–2018* provides the strategic framework and guidance for achieving equitable

health outcomes for Pacific peoples in New Zealand (Ministry of Health 2014b).

Children share a central position in both traditional and modern Pacific societies. Core cultural values include family, community, culture, spirituality and a holistic world view of life and health (Ministry of Health 2014b; RNZCGP 2013; Craig et al 2008). Pacific adults play a significant role in these communities. They are important role models and facilitators of play, physical activity, sport, social interaction and connectedness (Craig et al 2008; Ministry of Health 2008).

**'Healthy confident children, strong resilient families and engaged communities are the building blocks of a vibrant and hopeful society'**  
(Craig et al 2008).

## Childhood obesity

The Guidelines form part of the 'broad approaches to make healthier choices easier for all New Zealanders' under the *Childhood Obesity Plan* (Ministry of Health 2015a).

In January 2016, the Commission on Ending Childhood Obesity (ECHO) presented a report to the WHO. The report makes several recommendations for how governments should address obesity. These Guidelines help address the following recommendations from the report:

- 2.1 Provide guidance to children and adolescents, their parents, caregivers, teachers and health professionals on healthy body size, physical activity, sleep behaviours and appropriate use of screen based entertainment.
- 4.11 Ensure physical activity is incorporated into the daily routine and curriculum in formal child care settings or institutions.
- 4.12 Provide guidance on appropriate sleep time, sedentary or screen time, and physical activity or active play for the 2–5 years of age group' (WHO 2016).

# Sit Less, Move More, Sleep Well: Active play guidelines for under-fives

Regular active play, limited sitting and enough good-quality sleep are important for a child's healthy growth and development.

## Sit Less

1. Provide regular activity breaks to limit the amount of time a child spends sitting.
2. Discourage screen time for under-two-year-olds and limit screen time to less than one hour every day for children aged two years or older – less is best!
3. Limit time in equipment that restricts free movement.

## Move More

1. Provide fun activities that support physical, social, emotional and spiritual growth (at least three hours every day for toddlers and preschoolers, spread throughout the day).
2. Include plenty of opportunities for active play:
  - that develop movement competence and confidence
  - that provide sufficient challenges to build resilience and encourage creativity through exploration
  - where children are by themselves as well as interacting with others, such as parents, siblings, friends, whānau/family and other caregivers
  - that include a variety of indoor and outdoor activities, especially activities involving nature.

## Sleep Well

1. Babies (birth to three months) should have 14 to 17 hours good-quality sleep every day, including daytime sleeps centred round their physical and emotional needs.
2. Infants (four to twelve months) should have 12 to 15 hours good-quality sleep every day, including daytime sleeps, which will tend to decrease as they get closer to one year of age.
3. Toddlers (one to two years inclusive) should have 11 to 14 hours of good-quality sleep every day, including at least one daytime sleep.
4. Preschoolers (three to four years inclusive) should have 10 to 13 hours of good-quality sleep every day, with consistent bedtimes and wake-up times.

When using these guidelines with families of children under-five years of age, it is important to note that any change to the time spent doing one activity affects the time spent doing other activities. Thus, greater health benefits can be gained by switching the amount of time spent in front of a screen with additional energetic play time, while maintaining good-quality sleep time.



# Sit Less



Provide regular activity breaks to limit the amount of time a child spends sitting.



Discourage screen time for under-two-year-olds and limit screen time to less than one hour every day for children aged two years or older – less is best!



Limit time in equipment that restricts free movement.

## Summary of evidence

Sitting for long periods of time and watching screens for longer periods (including TV viewing), without breaks, contribute to poorer health outcomes for children (Allen and Clarke 2016).

Prolonged screen use (even educational TV) can be detrimental to a child's physical health, emotional health and communication skills (Le Blanc et al 2012). It can also affect the quality and quantity of their sleep (Allen and Clarke 2016). However, regular reading and story time are positive for cognitive and communication skills.

Longer time spent watching TV during a child's younger years is associated with decreased maths and physical abilities, lower classroom attentiveness and increased emotional problems later in childhood (Le Blanc et al 2012; Pagani et al 2013; Hinkley et al 2014).

Longer time spent watching screens is also associated with other poorer health outcomes, including higher body mass index (BMI) levels in toddlers.

Babies between 9 and 24 months of age who have had their movements restricted have been found to be heavier than babies who have been able to move more freely (Sijtsma et al 2013). A healthy body size is important for good health and wellbeing. Overweight and obese children are more likely to be obese when they are adults, and

are also more likely to have abnormal cholesterol and blood pressure levels at a younger age than children who are within a normal weight range (WHO 2016).

Mobile baby walkers can restrict the muscle development required for independent walking and may also lead to injuries from accidents and falls (American Academy of Paediatrics 2001). This is because muscular development happens in a specific sequence. Each stage is important for programming the central nervous system and musculoskeletal system to enable a child to progress through each stage of their development in the appropriate order (Connell and McCarthy 2014).

Some baby jumpers allow the baby to just touch the floor, which can push the body forwards and the head back. This means the baby is not using their hip or gluteal muscles. If baby jumpers are used regularly for long periods, children may find it difficult to put their feet flat on the floor, which can delay their progression to walking (Woodman 2014).

## New Zealand data on obesity in under-fives

Obesity affects around 7 percent (CI 9.4–12.2) of New Zealand children aged 2 to 4 years. This figure has been decreasing since the 2012/13 New Zealand Health Survey but not at a statistically significant rate (Ministry of Health 2016d).

## Background

### Regular activity breaks

The human body has evolved to move throughout the day (Owens et al 2010). Under-fives in particular need regular opportunities to move and play.

When children move and play, they use their physical, emotional and intellectual senses to build knowledge, which allows them to learn more. Some of the things they learn through moving cannot be taught or learned solely from sitting still or watching screens.

### Limit screen time

Link to the learning outcomes of Te Whāriki

**Communication** | Children are strong and effective communicators.

**Mana reo** | Through te reo Māori, children's identity, belonging and wellbeing is enhanced.

In New Zealand, parents often feel compelled to introduce 'educational TV' and other electronic devices to young children to ensure that their children do not fall behind others of a similar age/developmental stage. Children will naturally be attracted to the colourful, fast movement emitting from screens, but this does not mean screens are good for them. Under-fives should spend as little time as possible watching screens and more time playing both inside and outside.

In order to get an under-five away from the screen, activities have to be fun, engaging and challenging.

### Equipment that restricts free movement

Parents and caregivers should limit the time under-fives spend in equipment that restricts free movement (Abbott and Bartlett 2001; Pin et al 2007), with the exception of specialist postural equipment (splints and specialist sitting, lying or standing equipment). In this case, advice should be sought from the child's specialist on how to modify physical activities to allow these children to participate.

Equipment that restricts movement can be sub-categorised on the basis of essential safety equipment (such as baby capsules and car seats), seating equipment (such as high chairs, activity gyms, baby carriers and baby jumpers), other transporting equipment and mobile baby walkers.

### Essential safety equipment

Some equipment that restricts a child's free movement is necessary for safety, especially in uncontrolled environments. Child restraints (baby capsules and car seats) are legally required to be used in New Zealand when travelling in a vehicle (NZTA 2016). Long car trips should be broken up with regular stops. During the stops, under-fives should be removed from their child restraints so their movement is not restricted for too long.

Capsules and car seats should only be used for transportation, and under-fives should not be left to sleep in them.

## TV viewing habits for under-fives



# 45 %

of children in New Zealand aged two to four years watched a weekly average of two or more hours of TV per day in 2014/15.

There was no significant difference in the children's viewing habits by ethnicity (Ministry of Health 2016d).

## Seating equipment

Seating equipment, such as high chairs, seat swings, activity gyms and baby jumpers, should be used in moderation and only once a child is developmentally ready. Using seating equipment for a child who is not developmentally ready can delay the development of their natural sitting abilities since the equipment supports the child and negates the need for the child to use their own core muscles. If a child is developmentally ready, and can sit up on their own, this equipment can be useful for containing them, for example, during meal times.

Activity gyms, swings and other restrictive equipment may seem fun for under-fives. However, this equipment reduces the time a child gets to spend freely moving around the floor. It can also affect their spatial awareness if used for long periods.

## Other transport equipment

Other restraining equipment used in transporting under-fives, such as pushchairs and slings/baby carriers, may be useful. This equipment can be great for keeping babies and infants safe while out and about, enabling parents to carry shopping and making it easier to walk (especially outdoors and over rough ground).

## Mobile baby walkers

The Ministry and the Australian Physiotherapy Association both discourage the use of mobile baby walkers. This is due to the risk of injury from falls and increased access to dangerous places, such as stairs, fireplaces and kitchen cupboards, and because they can restrict the muscle development required for independent walking (Ministry of Health 2015b; APA 2007).

Under-fives will walk when they are ready, but providing them with appropriate opportunities for floor-based play will help them to develop the appropriate muscles quicker than if the opportunities for play are not given. While it is assumed that baby walkers can improve the time it takes for a child to start walking, research has found that they may actually delay the development of independent walking skills (Garrett et al 2002; Talebian et al 2008).

Where an under-five has difficulty moving around freely and independently, it may be

appropriate to refer the child to a GP or specialist for assessment or provision of equipment.

## Ideas

All young children should be encouraged to break up long periods of sitting and move regularly throughout the day. The following ideas are low-cost/free options for encouraging movement and meeting the Sit Less guidelines.

- From birth, encourage regular, unrestricted floor-based play (tummy time), on a safe surface.
- Be a role model: reduce your own screen use.
- Replace TV time with reading time, story time or doing jigsaw puzzles together.
- Avoid having the TV playing in the background.
- Remove the TV completely or limit having it on until the children have gone to bed.
- Do not have screens in (any) bedrooms.
- Set limited viewing times for all screens.
- Store DVDs, consoles, tablets and electronic games out of sight.
- Break up long car journeys with regular stops (preferably at least once an hour), removing under-fives from their capsule/car seat at each stop.
- Encourage toddlers and preschoolers to walk instead of being in a pushchair.

## Links

- *Tots, Toddlers and TV: The potential harm:* [www.brainwave.org.nz/tots-toddlers-and-tv-the-potential-harm/](http://www.brainwave.org.nz/tots-toddlers-and-tv-the-potential-harm/)
- Raising Children: Supporting parents: Preschoolers: Parenting: [www.raisingchildren.org.nz/stories/free-range-kids/](http://www.raisingchildren.org.nz/stories/free-range-kids/)
- *We Need to Talk: Screen time in New Zealand:* [www.familyfirst.org.nz/wp-content/uploads/2015/01/WE-NEED-TO-TALK-Screentime-Full-Report.pdf](http://www.familyfirst.org.nz/wp-content/uploads/2015/01/WE-NEED-TO-TALK-Screentime-Full-Report.pdf)
- *Well Child Tamariki Ora: My Health Book:* [www.health.govt.nz/resource/well-child-tamariki-ora-my-health-book](http://www.health.govt.nz/resource/well-child-tamariki-ora-my-health-book)
- *Clinical Guidelines for Weight Management in New Zealand Children and Young People:* [www.health.govt.nz/publication/clinical-guidelines-weight-management-new-zealand-children-and-young-people](http://www.health.govt.nz/publication/clinical-guidelines-weight-management-new-zealand-children-and-young-people)



# Move More



Provide fun activities that support physical, social, emotional and spiritual growth (at least three hours every day for toddlers and preschoolers, spread throughout the day).

Include plenty of opportunities for active play:



- that develop basic movement competence and confidence



- that provide sufficient challenges to build resilience and encourage creativity through exploration



- where children are by themselves as well as interacting with others, such as parents, siblings, friends, whānau/family and other caregivers



- that include a variety of indoor and outdoor activities, especially activities involving nature.

## Summary of evidence

Short- and long-term health outcomes for under-fives improve as the time spent being physically active increases (Allen and Clarke 2016).

Under-fives who play regularly tend to have healthier weights and develop better movement competence skills than those who are physically inactive (Allen and Clarke 2016).

Throughout childhood, but particularly up to the age of five, a child needs plenty of opportunities for active play in order to develop their movement competence skills and body awareness (Winter 2010; Sport NZ 2015). Movement competence skills can be broken down into three key areas.

1. **Stability and balance skills:** skills that use muscles to balance either in one position or while moving. The following activities will help develop stability and balance.
  - Balancing on steps, planks or other narrow structures.

- Stretching, bending, twisting and turning
- Rolling or sliding down objects like grass banks.
- Head/handstands.
- Walking on uneven surfaces, for example, on bush tracks or over rocks.

2. **Locomotor skills:** skills that use the large muscle groups to enable movement from one place to another in any direction. The following activities help develop locomotor skills.
  - Walking, galloping and running.
  - Jumping, leaping, hopping (independently on the right and left foot) and skipping.
  - Climbing on objects or up/down stairs.
  - Moving to music.
  - Human wheelbarrow racing.

3. Manipulation skills: skills that use muscles to move an object from one place to another. The following activities will help develop manipulation skills.
- Throwing, catching, bouncing or kicking a ball.
  - Striking an object (such as a ball) with a bat or racquet.
  - Digging in the dirt, in a sandpit or on the beach
  - Tracking objects with the eyes (Raising Children 2016a).

Children need regular active play that provides sufficient challenge to build resilience and encourage creativity. Active play is fun for children, but it is also important for balance, coordination and muscle development (Little and Wyver 2008).

Children as young as three years who have more unstructured time for playing develop better intellectual and emotional self-regulatory skills (Barker et al 2014; Whitebread et al 2015), communication and cognitive development skills (Timmons et al 2012) and an enhanced ability for academic learning (Palmer et al 2013; Pontiz et al 2009) than those who have less unstructured playtime.

The need for unstructured play must be balanced with adult-led activities, which are also important for a child's development (particularly for babies and infants) (Naber et al 2008).

Adult-led activities allow children to learn new skills and ideas on how to do the activity as well as allowing them to try higher-risk activities, for example, balancing on a low wall while the adult holds their hand.

Children acquire much of their physical, social and emotional development through playing, interacting and experiencing their surroundings (inside, outside, rural, coastal or urban) (Pellis et al 2010; Becker et al 2013).

Children who spend more time playing outside are more likely to be physically active than those who mainly play indoors (Gray et al 2015; Bingham et al 2016) and are also likely to spend less time watching screens (BHFNC 2015).

## Background

### Fun activities that support physical, social, emotional and spiritual growth

Links to the learning outcomes of Te Whāriki

**Wellbeing** | Children have a sense of wellbeing and resilience.

**Mana atua** | Children understand their own mana atuaanga – uniqueness and spiritual connectedness.

Play is an important way for a child to grow physically, socially, emotionally and spiritually, all of which are vital for their future health and wellbeing. Children are naturally curious and active, and movement through play is the way they learn about their new world. Most importantly, play should be fun!

Establishing regular daily movement from birth (for example, through tummy time for children who cannot walk and daily active play for children who can walk) will help to provide a platform from which children can learn more complex tasks, such as running, climbing trees, riding a bike, swimming or playing sport (Sport NZ 2015; Sport Wales 2014).

Regular active play helps develop a child's physical systems, such as muscle and bone growth, coordination, balance and basic movement competence skills. Toddlers and preschoolers should be encouraged to do at least three hours of physical activity each day at any intensity – and for preschoolers, at least one hour of this should be energetic play.

Active play also provides the opportunity to develop social skills and emotional confidence, self-esteem and resilience. These life skills are developed with the guidance of key caregivers and will help give children the motivation and confidence to try new physical activities (Whitebread et al 2015). A nurturing environment where the children are shown love and support, and where their whānau/family cultural beliefs and values are considered is vital to the child becoming and remaining active.

Parents, whānau/families and other caregivers can help their under-fives learn social and emotional skills by demonstrating active, healthy living and other desirable behaviours, such as regular physical activity, sharing, taking turns and compromising (Zero to Three 2010).

## Developing movement competence and confidence

Movement encourages the brain to develop and strengthen its neural pathways. In the first five years of life, these connections are made predominantly through land and water-based play.

Small muscles, such as those in the fingers, are used for delicate skills (picking up and manipulating small objects, painting, scribbling and drawing), and larger muscles of the arms and legs are used for more strenuous movements, such as crawling, sitting up and walking.

Throughout life, people will use their muscles on a daily basis, so it is really important that these are developed appropriately before the age of five. Repetitive use makes these muscles stronger (Raising Children 2016a).

Sport NZ's Physical Literacy Approach suggests that under-fives need opportunities for active play every day.

## Building resilience and encouraging creativity through exploration

Links to the learning outcomes of Te Whāriki

**Exploration** | Children are critical thinkers, problem solvers and explorers.

**Mana aotūroa** | Children see themselves as explorers, able to connect with and care for their own and wider worlds.

Active play encourages creativity, imagination and exploration. Help and guidance along the way will support children to learn about decision-making and build their resilience. The ideal situation is to let children take and manage risks so they feel independent and able to play freely and explore, whilst under adequate supervision to ensure their safety without interfering with their play (Cordovil et al 2015).

If all children (including those with disabilities) experience controlled risk when they are younger, they are more likely understand it and less likely to take dangerous risks when they are older (Brussoni et al 2012; Little and Wyver 2008). It is about balancing safety and risk with the potential for growth and development through experimentation (Greenfield 2004; Castro 2012). Appropriate risk taking, such as trying new things like sitting upright, standing, walking and riding a bike, will change as the

## Basic skills for under-fives

The mean age at which children take their first wobbly steps is 12 months.



# 91%

of two-year-olds can run and stop themselves without bumping into things or falling.

**97%** of children can scribble on a piece of paper with a pencil or crayon at two years of age.

**79%** of two-year-olds can kick a ball without holding onto anything.

**69%** of two-year-olds can jump with both feet leaving the floor at the same time (Morton et al 2014).

child grows and must be learned through trial and error (Connell and McCarthy 2014).

Playing in the rain, splashing in mud, climbing and even getting stuck in places that are hard to get out of are examples of ways to build resilience. The under-fives is a great age group to introduce to the concept of THREES:

- **Tools** (such as hammers and nails, gardening tools)
- **Heights** (such as climbing trees and objects in playgrounds)
- **Rough and tumble** (such as play fighting)
- **Exploration** (independent exploration where they can find their own path and hiding places)
- **Elements** (natural elements, such as mud, water and sand)
- **Speed** (such as go-karts, bikes and slides) (AUT 2015).

‘It is clear that children are naturally drawn to real (free) play, especially to the thrill and excitement of risky play, and this approach may prove more effective at engaging children and parents than traditional health promotion messages centred on physical activity, sport, and exercise’ (AUT 2015).

## Independent and interactive play

Links to the learning outcomes of Te Whāriki

**Contribution** | Children learn with and alongside others.

**Mana tangata** | Children have a strong sense of themselves as a link between past, present and future.

Regular land- and water-based play is just as important for babies as it is for preschoolers (Department of Health UK 2011b). Babies and infants need regular tummy time in order to learn movement competence skills. It is through repetition that a child’s brain teaches the muscles to do these movements automatically (Raising Children 2016b). Regular supervised water play is also good for children to help them familiarise themselves with and gain a basic confidence in and around water. Children under five years of age should always be supervised in and around water.

Under-fives learn by doing, manipulating objects, asking questions and interacting with others. This is as important for those with disabilities as those activities focused on cognitive development or language. Playing together is a great way for caregivers and children to interact and have fun together (Hedges et al 2014).

However, children also need opportunities to play on their own, which allows their imagination and problem-solving skills to develop as well as their physical skills, and all opportunities should be offered within the context of a fun play environment.

The environment or setting a child spends most of their time in highly influences how active the child becomes (Jones 2013). There is evidence to suggest that children whose parents are physically active are more likely to engage in physical activity themselves (Xu et al 2014, 2015).

Regardless of the setting, caregivers have an important role in ensuring under-fives have regular opportunities for active play by providing a supportive environment for children to grow and develop in their own time.

## Indoor and outdoor activities, especially involving nature

Links to the learning outcomes of Te Whāriki

**Belonging** | Children know they belong and know how to behave here.

**Mana whenua** | Children's relationship to Papatūānuku is based on whakapapa, respect and aroha.

Almost any space can be a play space. Children need daily opportunities for regular indoor and outdoor<sup>2</sup> play, which offers variety and allows options for building up both the small and large muscles (O'Neill 2009). Most activities suggested in these Guidelines can be done indoors, so this section concentrates on the health benefits of playing outdoors.

Under-fives should be encouraged to play regularly and experience a variety of physical activities. Ideally, these activities should be in a range of different indoor and outdoor environments, such as grass, mud, sand, water, snow, gravel, carpet, stones and concrete. These should be a mixture of freely chosen and adult-led activities.

The Department of Conservation is leading the Healthy Nature Healthy People programme, which aims to encourage New Zealanders to use natural outdoor spaces (urban parks, bush land, beaches, national parks and waterways) to maintain and improve health and wellbeing. One of the key principles of the programme is that 'contact with nature is essential for improving emotional, physical and spiritual health and wellbeing' (Department of Conservation 2015).

Although not specific to under-fives, international research suggests that exposure to natural outdoor spaces is beneficial to health. Access to natural outdoor spaces provides opportunities for play and by providing places to meet friends as well as take part in group activities. It also offers direct benefits for mental health. Increasing the level of physical activity

## Play

In New Zealand, 65 percent of mothers (4,095) in the Growing up in New Zealand (GuiNZ) longitudinal study often or very often let their child take a risk if there was no major threat to the child's safety (Morton et al 2014).

Most parents (over 75%) thought that children should take part in messy play, use playground equipment, climb trees and play with loose objects (such as sticks, tyres, wood and tarpaulins) by the time they were four or five years old. However, the State of Play report found that:



# 51 %

of children in New Zealand do not often engage in messy play (eg, mud, dirt, sand, water, paint).

**14.8%** are often allowed to play outside in the rain.

**71.8%** do not often climb trees.

**68.4%** do not often engage in rough-and-tumble games.

**53.8%** do not often ride bikes, scooters or other non-motorised vehicles (AUT 2015).

<sup>2</sup> Children should have appropriate clothing and sun protection when playing outdoors. See the SunSmart website at: [www.sunsmart.org.nz/](http://www.sunsmart.org.nz/)

and improving mental health are high-level goals of the New Zealand health sector (Department of Conservation 2013).

‘Just as children need good nutrition and adequate sleep, they may very well need contact with nature. Healing that broken bond between our young and nature is in our self-interest, not only because aesthetics or justice demands it, but also because our mental, physical and spiritual health depends on it’ (Louv 2010).

## Ideas

All young children should be encouraged to be physically active to the extent appropriate to their ability and age. It is important to note that children will develop different abilities at different ages. The following ideas are low-cost/free options for encouraging movement and meeting the Move More guidelines.

### Babies

- Play with your baby and encourage regular floor-based play, on a safe surface (indoors or outdoors).
- Encourage babies to reach, grasp and hold by placing toys just out of reach.
- Roll a ball in front of your baby to encourage them to lift their head to see and reach for it.
- Supervised water-based play is ideal for getting babies confident in water.

### Infants

- Play with your infant and encourage them to move and explore on the floor – they will crawl and push themselves into a sitting position independently when they are ready.
- Allow infants to pull themselves up on and move around objects, such as coffee tables.
- Hold hands and walk with the infant when they are ready and independently walking by themselves. Do not force their arms higher than shoulder height.

- Encourage infants to track movements with their eyes by blowing bubbles.
- Supervised water-based play is ideal for getting infants confident in water.
- Introduce taonga puoro (traditional Māori musical instruments).

## Toddlers and preschoolers

- Play interactive games, such as Simon Says.
- Encourage play in an indoor playhouse made from cardboard boxes or chairs and bed sheets or an outdoor play house made from old wood, sticks and grass.
- Supervised water-based play is ideal for getting toddlers and preschoolers confident in water and understanding basic water safety principles.
- Introduce Māori activities, such as waiata, haka and poi as a way of sharing pūrākau (ancestral knowledge), or traditional practices like raranga (weaving).
- Introduce Māori games, such as tī rākau (traditional stick game), tī ringaringa (hand games), pōtaka (spinning top).
- Encourage active movement habits by walking to the shops, the park, to kindergarten, the church or marae or places of cultural significance (for example awa (river), roto (lake), maunga (mountain), ngahere (forest)).
- Visit a local playground or park.
- Encourage upper body strengthening activities, such as human wheelbarrow walking, swinging on monkey bars and playground rings and climbing ladders.
- Encourage walking barefoot on different textures, such as sand, bark, grass or concrete.
- Collect pinecones in the bush, leaves from a park or native resources, like kawakawa leaves in the ngahere or pipi at the beach.
- Make words in the sand or mud or follow a trail made with shells, sticks or stones.
- Play hide and seek (indoors or outdoors).
- Climb trees or other objects, such as climbing frames.
- Put on some music and dance (can be at home, the marae, kindergarten or church).

- Blow bubbles for them to try to catch.
- Encourage them to ride a tricycle, scooter, balance bike or pedal bike.
- Build sandcastles or fly a kite at the beach.
- Plant a vegetable garden at home, in the community, at kindergarten or at the marae.
- Search for bugs/insects and other non-poisonous creatures.
- Do bark rubbing or go on a treasure hunt.
- Have stick races (Pooh sticks).
- Have playdates with other children.
- Do jobs around the house – under-fives love ‘helping’ by hanging out washing, vacuuming, sweeping and mopping.

## Links

### Health

- *Well Child Tamariki Ora: My Health Book:* [www.healthed.govt.nz/resource/well-child-tamariki-ora-my-health-book](http://www.healthed.govt.nz/resource/well-child-tamariki-ora-my-health-book)
- Locomotor Skills: [www.sportnz.org.nz/assets/Uploads/attachments/managing-sport/young-people/fundamental-movement-walking.pdf](http://www.sportnz.org.nz/assets/Uploads/attachments/managing-sport/young-people/fundamental-movement-walking.pdf)
- The Child’s Right to Play: [www.ipaworld.org/chilids-right-to-play/the-chilids-right-to-play/](http://www.ipaworld.org/chilids-right-to-play/the-chilids-right-to-play/)
- He Pi Ka Rere: Learning to Fly physical activity programme: [www.toitangata.co.nz/he-pi-ka-rere](http://www.toitangata.co.nz/he-pi-ka-rere)
- *Improving Support for Pacific Families in New Zealand: Project report:* [www.plunket.org.nz/assets/PDFs/Improving-Support-for-Pacific-Families.pdf](http://www.plunket.org.nz/assets/PDFs/Improving-Support-for-Pacific-Families.pdf)
- Cancer Society: *Sun Protection for Babies and Toddlers:* [www.cancernz.org.nz/assets/Products-2/IS-babies-toddlers-15Aug2012.pdf](http://www.cancernz.org.nz/assets/Products-2/IS-babies-toddlers-15Aug2012.pdf)
- Halberg Disability Sport Foundation: [www.halberg.co.nz/](http://www.halberg.co.nz/)
- Scope: About disability: Games all children can play: [www.scope.org.uk/support/families/play/games](http://www.scope.org.uk/support/families/play/games)

- NHS: Pregnancy and baby: Keeping babies and toddlers active: [www.nhs.uk/conditions/pregnancy-and-baby/pages/keeping-kids-active.aspx](http://www.nhs.uk/conditions/pregnancy-and-baby/pages/keeping-kids-active.aspx)

### Nature

- *Benefits of Connecting Children with Nature: Research in support of Investing in Conservation Education for a Sustainable and Prosperous Future:* [www.doc.govt.nz/Documents/getting-involved/students-and-teachers/benefits-of-connecting-children-with-nature.pdf](http://www.doc.govt.nz/Documents/getting-involved/students-and-teachers/benefits-of-connecting-children-with-nature.pdf)
- Department of Conservation: Healthy Nature Healthy People: [www.doc.govt.nz/healthy-nature-healthy-people/](http://www.doc.govt.nz/healthy-nature-healthy-people/)
- Department of Conservation: Places to go: [www.doc.govt.nz/parks-and-recreation/places-to-go/](http://www.doc.govt.nz/parks-and-recreation/places-to-go/)
- Natural England: England’s largest outdoor learning project reveals children more motivated to learn when outside: [www.gov.uk/government/news/englands-largest-outdoor-learning-project-reveals-children-more-motivated-to-learn-when-outside](http://www.gov.uk/government/news/englands-largest-outdoor-learning-project-reveals-children-more-motivated-to-learn-when-outside)
- Children & Nature Network: [www.childrenandnature.org/](http://www.childrenandnature.org/)
- The Wild Network: [www.thewildnetwork.com](http://www.thewildnetwork.com)
- Raising Children: Supporting parents: Preschoolers: Parenting: [www.raisingchildren.org.nz/stories/free-range-kids/](http://www.raisingchildren.org.nz/stories/free-range-kids/)

### Safety

- Safekids: Cycling / bike helmets: [www.safekids.nz/Safety-Topics/Details/Type/View/ID/2/Cycling-Bike-Helmets](http://www.safekids.nz/Safety-Topics/Details/Type/View/ID/2/Cycling-Bike-Helmets)
- Safekids: Water safety (pools): [www.safekids.nz/Safety-Topics/Details/Type/View/ID/6/Water-Safety-Pools](http://www.safekids.nz/Safety-Topics/Details/Type/View/ID/6/Water-Safety-Pools)
- Water Safety New Zealand: Under-fives: [www.watersafety.org.nz/resources-and-safety-tips/safety-info-tips/under-fives/](http://www.watersafety.org.nz/resources-and-safety-tips/safety-info-tips/under-fives/)



# Sleep Well<sup>3</sup>



Babies (birth to three months) should have 14 to 17 hours good-quality sleep every day, including daytime sleeps centred round their physical and emotional needs.



Infants (four to twelve months) should have 12 to 15 hours good-quality sleep every day, including daytime sleeps, which will tend to decrease as they get closer to one year of age.



Toddlers (one to two years inclusive) should have 11 to 14 hours of good-quality sleep every day, including at least one daytime sleep.



Preschoolers (three to four years inclusive) should have 10 to 13 hours of good-quality sleep every day, with consistent bedtimes and wake-up times.

## Summary of evidence

Children who consistently sleep less than the recommended amount each day have lower physical, emotional and social functioning outcomes (all ages) as well as impaired academic performance (Allen and Clarke 2016; Kelly et al 2013; Cespedes et al 2014).

Poor sleep habits in early life are consistently associated with poorer health outcomes in later childhood. Infants, toddlers and preschoolers who regularly sleep less than the recommended amount each day are more likely to watch more TV/other electronic media and have higher BMIs, greater risk of obesity and lower health-related quality of life than children who met the recommended daily amount of sleep (Allen and Clarke 2016).

Having a TV or other media device in the bedroom can replace some of the time a child spends sleeping. A 2013 study of children's

pre-sleep activities and time of sleep found that children who did not watch TV before bed went to sleep earlier and slept for longer than those who did watch TV before bed (Foley et al 2013).

Under-fives need cuddles, interaction, patience, role modelling and encouragement from their caregivers to make them feel secure and emotionally attached (O'Neill 2010). Secure attachments contribute to supporting good-quality sleep, better academic learning, good emotional and social functioning, good behaviour and positive relationships (AAIMHI 2004, partially revised 2013, 2016).

Wahakura (a woven flax bassinet) is a kaupapa Māori safe-sleeping device designed by Māori for Māori that allows mother and baby to be close to each other. Wahakura and Pēpi-pods<sup>®</sup> are promoted to provide a separate and safer sleep space for a baby in a shared bed (Baddock 2017), which is important in light of the sudden unexpected death in infancy statistics

3 The sleep well statements are based on the National Sleep Foundation (USA) recommendations, which were updated in 2016 – [www.sleepfoundation.org/sleep-topics/children-and-sleep](http://www.sleepfoundation.org/sleep-topics/children-and-sleep)

(50 percent of deaths in Māori children and 34 percent of deaths in Pacific children) (Safekids 2017a, 2017b).

From birth to five years of age, a child's normal development pattern and amount of sleep will change significantly (Owens and Burnham 2009). Waking during the night is a normal part of this developmental process, especially during the early years (Nobilo 2013).

In a 2016 study of the relationship between bedtime and obesity, researchers found that preschoolers who were put to bed after 9pm were twice as likely to become obese by adolescence as preschoolers who were put to bed before 9 pm (Anderson et al 2016).

## Background

Having consistent bedtime routines and limiting stimulating activities before bed can support good-quality sleep for all under-fives. Keeping the bedroom environment dark, quiet and at a comfortable temperature (around 20°C) every night can help children sleep well. The Ministry of Health has more information, advice and

tips on ways to make children sleep safe on its website [health.govt.nz](http://health.govt.nz)

Children vary widely in terms of temperaments, needs and cultural patterns, and their varying needs must be considered in conjunction to these Guidelines.

## Babies

In the first weeks of life, a baby will sleep between 14 and 16 hours a day. Although babies will sleep around the clock, their sleeping patterns will usually be centred round their physical and emotional needs, for example, when they need to be fed, changed or cuddled.

Babies tend to wriggle and move their arms and legs involuntarily, smile, suck and dream when they are asleep. This is a normal part of their early development, which they need in order to grow and develop appropriately (Jennie et al 2004). It does not mean the baby is awake and should be picked up.

Most babies do not sleep through the night<sup>4</sup> and do not have the developmental ability to put themselves to sleep; this is learned through the first four months of life (Martin 2012).

## Sleep for under-fives

The New Zealand Health Survey collects data on children aged two to four years.



# 66 %

of toddlers (aged two years) get the 'recommended' amount of sleep every day (11 to 14 hours)

27% of toddlers get between 9 and 10 hours or between 15 and 16 hours every day, which 'may be appropriate'.

7% of toddlers are outside the 'recommended' and 'may be appropriate' sleep ranges every day.



# 84 %

of preschoolers (three- and four-year-olds) get the 'recommended' amount of sleep every day (10 to 13 hours).

14% of preschoolers get between 8 and 9 hours or between 13 and 14 hours every day, which 'may be appropriate'.

2% of preschoolers are outside the 'recommended' and 'may be appropriate' sleep ranges every day (Ministry of Health 2016d).

Secure emotional attachment is formed at this stage of childhood, and babies will communicate their physical and emotional needs through crying (Harvard 2014). Taking the time to watch and learn a baby's cues and understanding how to respond to those cues in an appropriate way will be beneficial for the baby's sleep, which in turn will support optimal emotional and psychological health (Mares et al 2011; AAIMHI 2004, partially revised 2013).

If a baby continues to cry even when physical (hunger or wet nappy) and emotional (attachment) cues have been attended to, it could be the sign that something else is not right, for example, the baby may be sick. This could be missed if the baby is left to cry.

## Infants

Infants typically need 12 to 15 hours of sleep every day. This includes 9 to 12 hours of sleep at night and one to four additional daytime sleeps lasting for 30 minute to two hours. The daytime sleeps will tend to decrease as the infant gets closer to one year of age (National Sleep Foundation 2016).

By four months of age, infants will typically be sleeping for longer periods. However, they may still wake around four to six times a night (Owens and Burnham 2009).

Infants tend to develop the ability to fall asleep by themselves between four and six months of age (Mares et al 2011), but they may still require comforting when they wake during the night. Those children who are emotionally comforted as babies and infants often settle more quickly over time (AAIMHI, 2004, partially revised 2013) and sleep better in the long run than those who are left to cry (AAIMHI 2006).

## Toddlers

The development of a toddler's physical, emotional and cognitive abilities can affect their sleep patterns, as can changes to their normal routine (National Sleep Foundation 2016).

Toddlers need about 11 to 14 hours of sleep every day. At least one daytime sleep of between one and three hours is usually needed, as part of the 11 to 14 hours, in order to support growth and appropriate cognitive functioning. Ideally, the daytime sleep should not be too late in the afternoon as it could affect the toddler's ability to get to sleep again in the evening (National Sleep Foundation 2016).

Toddlers may resist going to bed and can experience waking during the night, dreams, fears and nightmares. These night-time behaviours can be due to a number of factors, such as the increase in their motor, cognitive and social abilities as well as their imaginations (National Sleep Foundation 2016).

If a toddler is experiencing regular sleepiness or problems with their behaviour, it could be a signal that they are not getting enough good-quality sleep.

## Preschoolers

Preschoolers will usually be in a basic routine where they will sleep for 10 to 13 hours each night, with their daytime sleeps reducing in duration and frequency as they get closer to going to school. As with toddlers, difficulty falling asleep and waking up during the night are common, as are nightmares, sleepwalking, bed wetting and other night-time behaviours (National Sleep Foundation 2016).

Establishing a consistent early bedtime for preschoolers, ideally before 8 pm, can help them sleep better and achieve the level of sleep required for optimal health, and also reduce the risk of obesity in later childhood (Anderson et al 2016). Preschool children who are put to bed later can become sleep deprived, and this can lead to attention and aggression problems by primary school age (Kobayashi et al 2015).

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4 Five hours of consecutive sleep during the night, rather than the eight or nine hours needed or expected as an adult (Martin 2012).

## Ideas

The following ideas are low-cost/free options for encouraging good-quality sleep and meeting the Sleep Well guidelines.

### Babies

- Observe baby's sleep patterns to identify signs of sleepiness.
- Place babies on their back to sleep.
- Encourage night-time sleep.
- Give plenty of cuddles and respond to physical and emotional cues when baby cries.
- Encourage sleep by singing oriori (lullaby) as a way of sharing pūrākau (ancestral knowledge).
- Promote safe bed sharing by using wahakura (woven bassinet) or Pēpi Pod®.

### Infants

- Develop a consistent (but flexible) daytime and bedtime schedule. This may include a warm bath, a massage, dressing in bed clothes, brushing teeth and reading a story.
- Respond to physical and emotional cues when infants cry.

### Toddlers and preschoolers

- Maintain a calm consistent bedtime routine. This may include a warm bath, dressing in bed clothes, brushing teeth and reading a story.
- Avoid any TV or other electronic devices or bright lights for at least one hour before bed.
- Promote independent sleep by putting toddlers to bed when they are tired but not asleep.
- Bedtime should be before 8 pm.

## Sleep safety (for all ages)

- Always put babies to sleep on their back.
- Bassinets, cots and wahakura should be kept free of loose covers, pillows, blankets and other objects, such as cuddly toys, that could cause suffocation.
- All fitted sheets must be the correct size for the mattress and pulled tight.
- Pets must be kept out of any room a child is asleep in.
- All cords, leads, window/blind wires and electrical equipment must be kept well away from children.

## Links

- National Sleep Foundation: Children and sleep:  
[www.sleepfoundation.org/sleep-topics/children-and-sleep](http://www.sleepfoundation.org/sleep-topics/children-and-sleep)
- *Well Child Tamariki Ora: My Health Book*:  
[www.healthed.govt.nz/resource/well-child-tamariki-ora-my-health-book](http://www.healthed.govt.nz/resource/well-child-tamariki-ora-my-health-book)
- Ministry of Health: Helping young children sleep better:  
[www.health.govt.nz/your-health/healthy-living/food-and-physical-activity/obesity/sleep-tips-young-children](http://www.health.govt.nz/your-health/healthy-living/food-and-physical-activity/obesity/sleep-tips-young-children)
- Safekids: Safe sleep:  
[www.safekids.nz/Safety-Topics/Details/Type/View/ID/13/Safe-Sleep](http://www.safekids.nz/Safety-Topics/Details/Type/View/ID/13/Safe-Sleep)
- Brainwave Trust:  
[www.brainwave.org.nz/](http://www.brainwave.org.nz/)
- Sleep Health Foundation: Sleep tips for children:  
[www.sleephealthfoundation.org.au/public-information/fact-sheets-a-z/224-sleep-tips-for-children.html](http://www.sleephealthfoundation.org.au/public-information/fact-sheets-a-z/224-sleep-tips-for-children.html)
- Whakawhetū: Wahakura:  
[www.whakawhetu.co.nz/wahakura](http://www.whakawhetu.co.nz/wahakura)
- Change for our Children: Pēpi-pod:  
[www.changeforourchildren.nz/pepi\\_pod\\_programme/home](http://www.changeforourchildren.nz/pepi_pod_programme/home)

# Glossary

**Active play** Play that involves moving the body at any intensity.

**Adult-led play** Where an adult organises an activity (such as setting up building blocks or a treasure hunt) for the child, or shows a child what to do before the child has a go themselves.

**Baby** Birth to three months of age.

**Body mass index (BMI)** Calculated by dividing a person's weight in kilograms by their height in metres squared.

The Ministry uses a modified WHO growth reference chart for under-fives to assess a child's BMI against other children of the same age. More information can be found on the Ministry's Growth charts webpage at: [www.health.govt.nz/our-work/life-stages/child-health/well-child-tamariki-ora-services/growth-charts](http://www.health.govt.nz/our-work/life-stages/child-health/well-child-tamariki-ora-services/growth-charts)

**Developmental stage** The range of time a child transitions from one stage to another (eg, from baby to infant).

**Energetic play** Play that involves activities done at a moderate to vigorous intensity.

**Every day** A 24-hour time period that includes both day and night.

**Growing up in New Zealand (GuiNZ)** A Social Policy Evaluation and Research Unit (Superu) longitudinal study that provides data about 7,000 New Zealand children that can be generalised. The cohort includes children born between April 2009 and March 2010, in Auckland, Counties Manukau and Waikato district health board areas.

**Health equity** The WHO defines health equity as 'the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically' (WHO 2017).

**Infant** Four months to one year (inclusive).

**Movement competence skills** The primary physical skills that can be broken down into three key areas:

- Stability and balance – Skills that use muscles to balance either in one position or while moving.
- Locomotor skills – Skills that use the large muscles to enable movement from one place to another in any direction.
- Manipulation skills – Skills that use muscles to move an object from one place to another.

**New Zealand Health Survey (NZHS)** Annual Ministry of Health survey of key health behaviours, health status and risk factors for health.

**Physical literacy** 'The motivation, physical competence, knowledge and understanding to engage in physical activities for life' (Whitehead 2016).

**Preschooler** Three to four years (inclusive).

**Real (free) play** Play that is within a child's physical capability, using appropriate equipment and toys. Real or free play involves exploration with supervision that ensures safety but doesn't interfere with play (Raising Children 2016b).

**Resilience** The mind and body's ability to learn, adapt and try again when challenged mentally or physically.

**Secure attachment** The emotional bond that a child forms with a person who soothes them and provides safety and comfort in times of distress (O'Neill 2010).

**Toddler** One to two years (inclusive).

**Water-based play** Supervised play involving the use of water. It may include playing with toys or natural objects in a sink, paddling pool, bath, river, stream, sea or swimming pool.

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