



# LITTLE PEOPLE, BIG LIVES REPORT

Foundations for healthy Australian children in the 21st century



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**NOTRE DAME**  
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AUSTRALIA



Image: Kids are encouraged to give it their best and just have fun at the Sanitarium Weet-Bix Kids TRYathlon, a non-competitive event supported by Bupa.



This report was prepared by Professor Christine Bennett AO, Professor Victor Nossar and Sharon Mullin, School of Medicine, University of Notre Dame Sydney. It was made possible by an unencumbered grant from Sanitarium Health Food Company.

It examines the foundations needed for Australian children to reach their physical, social and emotional potential and flourish in life.

#### Disclaimer

This information is provided for general educational and information purposes only. It is current as at the date of publication and is intended to be relevant for all Australian states and territories (unless stated otherwise) and may not be applicable in other jurisdictions.





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# FOREWORD

## From Sanitarium Health Food Company



As parents, we naturally want nothing but the best for our kids and do everything in our power to keep them happy and healthy, no matter how challenging they can be at times! In fact, I'd argue that Australian children are healthier than ever before. But the conveniences of modern life bring new challenges that can make it harder to know how we can help our kids reach their full potential.

At Sanitarium, we believe that healthier choices lead to better lives, happier people and stronger communities. To help empower parents in making the best decisions around wholistic health and wellness in their kids' everyday lives, we are delighted to have collaborated with the University of Notre Dame Sydney on the *Little People, Big Lives* report.

Through the lens of mind, body and spirit, the Notre Dame team led by specialist paediatrician Professor Christine Bennett has examined the latest evidence-based recommendations for optimal child development. It's a fascinating dive into what our kids need to grow into healthy, resilient adults. While it explores exciting new areas of research including epigenetics, neuroplasticity and the emerging role of the microbiome, the simplicity of the report's findings and the practical advice it offers demonstrate that in many ways kids need what they always have – love, care, encouragement, playtime and movement, nutritious food and quality sleep.

Since 1898, we've strived to improve the health and wellbeing of Australian families through affordable healthy food and by caring for our communities. We aim to reflect this through long-standing initiatives such as the Sanitarium Good Start Breakfast Club program and the Weet-Bix Kids TRYathlon series. Together these initiatives help provide kids with nourishing food choices, foster enjoyment of physical activity, advance cognitive skills and improve social connectedness.

We want the principles in this report to help every family enhance their day-to-day lifestyle and to spark a vital conversation about what is really important, including the little things that can make a big difference to lifetime health outcomes. It's time to make a stand for a simpler, healthier way of life, and lay the groundwork for our future generations to flourish.

A handwritten signature in black ink, appearing to read 'Todd Saunders', followed by a horizontal line.

TODD SAUNDERS

Executive General Manager, Sanitarium Australia and New Zealand



# FOUNDATIONS FOR HEALTHY AUSTRALIAN CHILDREN IN THE 21ST CENTURY

Childhood is a special time of life – full of wonder and promise. Australia’s children are healthier than ever before – they are less likely to die, to be injured or to fall sick and more likely to live healthier, longer lives. However, the health gains of the last century are at risk as new health issues for children have emerged. Without action these challenges have the potential to adversely affect the future health and lives of children as they grow and develop.

The importance of the early years of childhood development is now well understood, with evidence from neuroscience, molecular biology, genomics and the behavioural and social sciences, all suggesting that experiences early in life profoundly influence lifelong health and wellbeing.<sup>1</sup>

pregnancy and in the first years of life, however, some adaptive change is possible in our neural architecture throughout life. Recent research has shown positive changes in a child’s home environment can reduce the impact of early adverse events, improving the child’s development and life opportunities.<sup>6</sup>

Positive psychology fosters the development of positive emotions such as hope and gratitude, positive relationships and a focus on strengths. A child’s sense of self is influenced by feedback from family, teachers and friends. Considering strengths rather than weaknesses, encourages engagement and aspirations that strengthen self-esteem, a sense of belonging and purpose, all of which are protective of good mental health.<sup>6-8</sup>

*A child’s sense of self is influenced by feedback from family, teachers and friends.*

Existing and emerging scientific evidence should inform our actions to help children have the best possible start and a healthy, fulfilling and satisfying life. This includes research into:

- the impact of the child’s environment through epigenetics
- the developing brain and neuroplasticity
- the potential of positive psychology
- the emerging role of the microbiome
- the importance of social inclusion and social connection

The emerging science of epigenetics now reveals how environmental influences (particularly during the early years) are able to modify the expression of our inherited genetic code, in an attempt to prepare us for future adult life.<sup>2-5</sup>

Recent research in the field of neuroplasticity has demonstrated the degree to which our brains change and adapt in response to our environment. Neuroplasticity is greatest during

The gut microbiome, which is the ecosystem of trillions of microorganisms living within us, plays a key role in digestion, absorption and synthesis of nutrients. The composition and functioning of this biome is influenced by what we eat. This microbiome, in turn, influences our immune system and brain function, as well as our metabolism, weight and mood.<sup>9-12</sup>

Feelings of social isolation across the lifespan is increasingly being recognised as one of the most significant determinants of health and morbidity. In children, loneliness is positively correlated with disturbances in sleep and deficits in executive functioning, as well as increased experiences of depression, anxiety, headaches and abdominal discomfort.<sup>13-17</sup>

Many of the emerging problems for children in the 21st century are amplified if a society has significant social and economic inequities and if there are extra stressors, such as intergenerational unemployment and social exclusion - something that some Australian



families face daily. Our expanding understanding of these processes is important and relevant as social exclusion and socioeconomic status profoundly influence the mortality, obesity and mental health of Australian children.

Based on this understanding of the profound impact that experiences of early childhood can have on brain development - affecting learning, health and behaviour, The World Bank supports investment in early childhood development, believing it is "one of the smartest things a country can do".<sup>18</sup> It recognises that "inadequate nutrition, a lack of early stimulation, learning, and nurturing care, and exposure to stress" adversely affects the development of children, preventing them from reaching their full potential.<sup>18</sup>

To achieve the best possible health and wellbeing, each of us needs a childhood that fosters:

- optimal growth and development;
- positive mental wellbeing and resilience;
- effective education and learning;
- love and strong social connections; and
- a sense of spirituality and purpose.

These requirements are reflected in the following five action areas for child development, discussed in this report:

- **Safety, Security, Love and Belonging**
- **Healthy Eating and Drinking**
- **Active Play**
- **Healthy Sleep**
- **Positive Screen Time**

This report summarises the current state of knowledge regarding the best way to protect the foundations of child health and wellbeing, so that today's children can live longer, healthier and happier lives than the generations that have gone before them.



**RECONNECT WITH:**

- ✓ Play and laughter
- ✓ The safety and security of consistent, supportive and loving relationships
- ✓ Singing and sharing stories



# SAFETY, SECURITY, LOVE AND BELONGING

**To be cared for and feel loved is essential for all children – for their wellbeing and for them to flourish. A consistent and reliable adult, caring for a child, creates in the child the basis for future lifelong resilience. This is especially important in the early years of childhood.**

Love and affection are expressed through care and attention that is responsive to a child's needs. Love is the foundation for positive relationships and for the growth of confident happy children.<sup>19</sup> Laughter is a powerful antidote to the stresses of life, capable of diffusing conflict, aiding learning and strengthening connection and attachment.<sup>7</sup>

*Children learn about self through the interactions with others. When children feel emotionally supported in loving relationships, they become more confident and develop a healthy sense of self.*

Love, security and safety are considered the most prominent aspect of wellbeing.<sup>20</sup> The plasticity of children's brains is especially evident in the way their healthy development is dependent on secure attachment.<sup>21,22</sup> Children learn about self through the interactions with others. When children feel emotionally supported in loving relationships, they become more confident and develop a healthy sense of self.<sup>23</sup> Love and positive feelings are fundamental and provide the child with a sympathetic view of a safe and nurturing world.<sup>23</sup>

This in turn provides the foundation for children to feel valued and confident - able to positively engage with others and contribute to their communities.<sup>24</sup>

Neglect and abuse, on the other hand, shape the child's perception of the world as a hostile and

dangerous place.<sup>22,26,27</sup> Adverse childhood events are well known to be associated with lifelong physical and mental disadvantage.<sup>27-29</sup> Importantly, many decades of strong research reveal that provision of love and care, especially in the crucial early years of life, act to positively shape a child's development and can significantly reduce the impact of early adverse life circumstances.<sup>6,25,30-33</sup>

Praising children and noticing and appreciating the contributions they make, helps build their confidence and self-esteem. Taking a strengths-based approach<sup>8</sup> and using positive parenting styles, helps to build resilience in children.<sup>6</sup> Parents and carers can foster positive self-talk by modelling

this in themselves and openly acknowledging successes and strengths. By modelling adaptive and pro-social behaviours, children learn skills such as negotiating a frustrating task without getting upset, taking pride in their achievements and using humour and reflection when things don't turn out well.<sup>6</sup> Modelling self-forgiveness will help protect children from rumination and self-blame, both of which underpin feelings of depression and other mental illnesses.<sup>32</sup> If a child feels loved and valued, they will avoid seeking solace in maladaptive behaviours like substance misuse and self-harm, both of which are associated with low self-worth and negative self-talk.<sup>26</sup>

Finding children's strengths and taking a positive attitude to life helps draw the child's attention to their strengths, the strengths of others and the good things around them. This helps mitigate a negative attention bias (an over-attention to threatening or

negative things). Negative attention bias is a hallmark of depression and anxiety<sup>34</sup>, which are common and concerning disorders in Australian children.<sup>35</sup>

Children need regular times where they can be physically and emotionally close to their caregivers. Times when the adult providing their care can focus their attention, affection and stimulation - the optimum conditions for children to learn and engage. The time children spend with caregivers talking, playing, singing, sharing and simply

Children are perceptive to the emotions of others around them and are sensitive to stress. They can often be a barometer to parental stress - misbehaving in reaction to it.<sup>37</sup> It is important that caregivers attend to their own needs so that they can be available for their children. When caregivers go for a walk outside, or sit in quiet reflection, they model behaviours that will be adaptive for children when dealing with difficult or challenging situations.

*The time children spend with caregivers talking, playing, singing, sharing and simply being, provide the best conditions for children to live and learn.*

being, provide the best conditions for children to live and learn.<sup>36</sup> Within a loving and accepting environment, children can share thoughts and experiences that may be challenging, without fear of judgment or rejection. Predictable and consistent behaviours from caregivers allow children to better negotiate the world without anxiety and fear.<sup>19</sup> Material rewards are not meaningful expressions of love. Children feel loved when they are given time and attention. Love and laughter is expressed through loving eye contact, hugs and smiles, by talking, listening, playing and singing and sharing stories together.<sup>19</sup>

Taking time out to reflect also encourages mindfulness, and helps children develop focus, self-knowledge and self-regulation. Caregivers should feel able to talk about challenging emotions with their child and let them know they are still loved. Amongst all of this, is the importance of a loving and respectful relationship between parents. If present, this can predict positive mental health and behaviours that are helpful for the child's wellbeing and life satisfaction.<sup>38,39</sup>



***Summary: All children need to be cared for and loved if they are to grow and develop to the best of their potential. An adult who provides a child with warm, consistent and reliable caring creates an environment in which that child can develop lifelong resilience. Parents should also be aware that it is during the earliest years of life that they can make the most difference in their child's life. Equally, the wider society needs to ensure that parents are supported (and not hindered) to provide that essential care and love.***



#### KEY ACTIONS

- ✓ Notice an achievement
- ✓ Share news with each other, read to each other, sing with each other
- ✓ Use language that expresses warmth and positive feeling
- ✓ Play a game together

## RECONNECT WITH:

- ✓ family meal times – planning, preparing and enjoy eating together
- ✓ water – original thirst quencher
- ✓ vegetables – introduce a variety from an early age
- ✓ moderation – avoid excess



# HEALTHY EATING AND DRINKING

**Healthy eating and drinking is a key foundation for healthy growth and development.**

**Together with other key actions areas outlined in this report, it plays a key role in reducing lifetime risk of non-communicable diseases such as type 2 diabetes and cardiovascular disease, while its wellbeing benefits can not be underestimated.**

Eating meals together as a family and helping in the preparation of family meals, can enhance both important physical and social development.

Planning, preparing and eating meals as a family builds positive habits and attitudes towards food – as well as shaping us as social beings. Food is an important component of the social cohesion in our lives and a determinant of health through our life-course.<sup>43-48</sup>

Recent studies reveal surprising links between the food that we eat and our mental health, as well as how early life exposure to foods can diminish later risks of developing allergies.<sup>49,50</sup> It is now evident that what we consume shapes our gastrointestinal microbiome<sup>51</sup> – with its own implications for health and behaviour.<sup>9,11,49-53</sup> The microbiome informs

*Food is an important component of the social cohesion in our lives and a determinant of health through our life-course.*

Eating and drinking to excess (especially the wrong kinds of foods or drinks) increases the risk of obesity and lifelong health problems.

During the early years of childhood, the foods and drinks that children learn to consume are likely to stay with them into adulthood.

Healthy eating and drinking are now known to be essential for children to grow and function to the best of their potential.<sup>40</sup> Healthy nutrition promotes good physical and cognitive development and establishes habits about food that can continue into adulthood.<sup>41,42</sup> A mind and body well-nourished is better protected from acute and chronic disease, particularly if these habits are established early in life.

immunity, which is dysregulated in allergies<sup>10</sup> and modulates neurotransmitter concentrations which are the chemical messengers required for brain functioning and regulation of mood.<sup>9,11</sup>

People normally share their bodies with billions of microbes – on our skin, in our mouths and digestive tracts, indeed on and in every part of our bodies. These microbes constitute our unique flora and fauna – our microbiome. Each microbiome changes as we grow; for example our gut microbiome is shaped by the food we eat and drink and the antibiotics we take.

Our skin microbiome is modified by how we wash. Far from merely being contaminants or 'passengers', these microbiomes are now known to engage in ongoing 'chemical dialogue' with the cells of our bodies and are essential for good health.<sup>10,53</sup> They shape how our body tissues develop, and how we grow, feel and behave.<sup>9,11,52</sup> They can protect us from serious infection or overgrowth and make us sick.<sup>53</sup>

### Achieving optimal nutrition

The Australian Government's National Health and Medical Research Council (NHMRC) Australian Dietary Guidelines provide evidence-based guidance for a diet that promotes health and wellbeing and reduces the risk of future chronic disease.<sup>54</sup>

#### Australian Dietary Guidelines

These Guidelines set out five core food groups and the average number of serves daily for children ages 4-14 years:

- Vegetables and legumes: 5 serves
- Fruit: 2 serves
- Grain (cereal) foods: 4-6 serves
- Seeds, nuts, tofu, lean meats, poultry, fish, eggs: 1.5-2.5 serves
- Milk, yoghurt, cheese and/or their alternatives: 2-3.5 serves
- Water consumption for this age: 1.2-1.8 litres (6 cups to 9 cups) per day

Surveys have found that Australian children need to be encouraged to eat more vegetables and fruit and to drink more water. The 2014-2015 National Health Survey found that:

*Overweight and obesity in childhood has been found to be associated with adult obesity, poor self-esteem and depression.*

The same survey found 95% of Australian adults also failed to eat the recommended daily serves of fruit and vegetables.<sup>55</sup>

Childhood eating habits and family meal patterns, learned from previous generations, are carried into adulthood, influencing diet quality and potentially perpetuating unhealthy eating behaviours.<sup>41</sup> Children of parents who are overweight and obese have an increased risk of becoming overweight and obese themselves.<sup>56,57</sup> Overweight and obesity in childhood has been found to be associated with adult obesity, poor self-esteem and depression.<sup>54,58-61</sup>

Reducing the amounts of high energy/nutrient poor foods and drinks (such as cakes, biscuits, fast foods, confectionery, sweetened beverages) and consuming enough fruits, vegetables, wholegrains, legumes, nuts and water can reduce childhood rates of obesity, dental caries and constipation, whilst providing protection against chronic health problems (including cardiovascular disease, diabetes, osteoporosis and some cancers).<sup>40,62-65</sup>







Food also plays an important role in cultural identity and is a central part of many celebrations. Teaching children about the significance and preparation of traditional foods helps maintain cultural awareness and pride, developing a sense of belonging as well as an appreciation of food.<sup>66,67</sup>

*Involving children in shopping, choosing menus and preparing meals has also been shown to give them important life-skills and engage their creativity.*

Involving children in shopping, choosing menus and preparing meals has also been shown to give them important life-skills and engage their creativity. They are then more likely to eat food prepared at home, take pride in serving others and make wiser food choices.<sup>47</sup>

Drinking water from an early age, in preference to soft drinks, fruit-juice and cordials, helps to establish habits that will continue into adulthood. Current levels

of consumption of soft drinks, fruit juice and cordials are associated with increased risk of dental caries and increased risk of being overweight or obese.<sup>68,69</sup> The prevalence of child caries and the mean number of teeth affected by dental disease in children has increased in Australia in recent years.<sup>70</sup>

Soft drinks are a major source of mouth acid and additionally they often displace water, resulting in dehydration and reduction in protective salivary production. Soft drinks also displace milk consumption, reducing calcium consumption and increasing risk of osteoporosis and fractures later in life.<sup>69,70</sup> In addition, caffeinated drinks can have a negative impact on sleep quality and school performance.<sup>71</sup>



#### KEY ACTIONS

- ✓ Schedule unrushed family meals that are 'electronic free' zones
- ✓ Replace high calorie snacks with fruit and vegetables
- ✓ Replace soft drinks with water
- ✓ Let vegetables make up most of your meals

#### The NHMRC Summary Guide for the Management of Overweight and Obesity in Primary Care

- Take a family approach to improving nutrition and be a good adult role model.
- Ensure children have regular meals, including breakfast and snacks, in a sociable atmosphere. Whenever possible, eat meals as a family.
- Separate eating from other activities, such as watching television or using the computer.
- Encourage children to listen to internal hunger cues and to eat to appetite.
- Have healthy foods (and water) readily available.
- Avoid being restrictive or controlling of your child's food intake.
- Explain the concept of foods that are appropriate 'often' or 'sometimes'.
- Avoid using foods as treats or rewards.
- Comfort children with attention, listening and affection instead of food.
- Encourage children to develop healthy ways of regulating emotions (i.e. ones that don't involve food).



***Summary: Eating healthy foods including fresh vegetables and fruit, enjoying meals as a family and consuming water as the preferred drink, all play a key role in the healthy physical, emotional and social development of every child.***

# ACTIVE PLAY

**Active play is an essential foundation for healthy growth and development with physical, behavioural, social and emotional benefits. Current trends that steer child behaviour away from active play and physical activity, including more screen time, seriously jeopardise the establishment of these benefits, increase the risk of overweight or obesity issues and the potential loss of educational and social opportunities.**

Active play encourages children to be physically active, whilst having additional cognitive, social and psychological benefits. Active play allows children to explore their environment with imagination and creativity, in an unstructured way, often outside.<sup>72</sup>

Key physical skills, such as proprioception, coordination, fine motor skills and gross motor skills are used and extended during active play. Having unscheduled time facilitates the development of greater resourcefulness as a natural response to perceived boredom, thus building independence and resilience.<sup>73</sup>

Play is considered vital for developing our adaptive skills.<sup>74</sup> Play with objects, physical play, symbolic

can involve experimentation and the extension beyond the child's self-imposed limits.<sup>79</sup> As such, active play helps to develop problem-solving skills and the ability to adjust to an ever-changing environment, utilising cognitive spontaneity, physical spontaneity and social spontaneity, whilst manifesting joy and a sense of humour.<sup>80</sup>

Spending time outside, particularly in natural environments, is associated with improved wellbeing measures and a reduction in stress.<sup>81</sup> Research into children attending schools conducted in the natural environment, with much of the day spent outdoors in nature, has demonstrated that participating children were markedly more able to concentrate in comparison to city-schooled children.<sup>81</sup>

Similarly, even a walk in the park has been shown to be able to increase concentration levels and reduce challenging behaviours.<sup>82</sup>

However, another interesting benefit of children playing outside appears to be significant protection against the development of myopia in childhood.<sup>83-85</sup>

*Having unscheduled time facilitates the development of greater resourcefulness as a natural response to perceived boredom, thus building independence and resilience.*

play, make-believe and playing games with rules, all contribute to the development of language<sup>75</sup>, abstract thinking, self-control and cooperation.<sup>76</sup>

Musical play, through song and dance, is a significant form of play in all human cultures and it has powerful social and interactive characteristics that support communication, emotional understanding, memory, self-regulation and creativity.<sup>77</sup>

When children are immersed in active play, there is a sense of being fully in control and totally engrossed in the activity.<sup>78</sup> When in this flow-state, a level of heightened creativity exists and the play

Prevalence of myopia is increasing globally at an alarming rate and reaching epidemic levels in urban areas of East Asia. Myopia is a leading cause of irreversible visual impairment and blindness. Excessive near work, reading, screen-based activities, increases the risk of myopia, whilst play in open spaces, with distant horizons and greater light intensity, reduces rates of myopia.<sup>85-87</sup>

As children's physical skills and confidence develop, they are more likely to engage in organised sports and similar physical activities. The Australian Government's guidelines for physical activity



RECONNECT WITH:

- ✓ Active free play with friends outside
- ✓ The natural environment
- ✓ Friends in organised sports and interest groups

## KEY ACTIONS:

- ✓ Go outside to your local playground, park or bushland regularly
- ✓ Walk, ride or scooter to school (or to the shops) as part of your daily routine
- ✓ Join local activity groups or sports teams you have an interest in

*Physical activity is associated with better school performance, reduced levels of depression and anxiety and adoption of other healthy behaviours.*

for children (5-12 years old) recommends they participate in at least 60 minutes of moderate to vigorous intensity exercise each day.<sup>88</sup> Higher levels of physical activity are associated with greater health benefits.<sup>89</sup>

These include the prevention of cardiovascular disease, reductions in risks of diabetes, cancer, hypertension, obesity, depression, osteoporosis, and even premature death.<sup>90</sup> Regular physical exercise also maintains bone and joint health, improves muscle strength, has been found to be inversely associated with low grade inflammation and reduces risk of injury.<sup>91</sup> Physical activity is associated with better school performance, reduced levels of depression and anxiety and adoption of other healthy behaviours.<sup>92</sup> All this makes play vitally important for developing a sense of self, of belonging and of wellbeing.

Australian guidelines recommend physical activity across the lifespan.<sup>88</sup> Childhood activity levels influence later adult maintenance (or uptake of) physical exercise.<sup>93</sup> Unfortunately, surveys reveal that less than a quarter of Australian children are currently meeting the minimum physical activity recommendations.<sup>55</sup>

To achieve additional health benefits, children should engage in more activity – up to several hours per day. Children's physical activity should include a variety of aerobic activities, including some vigorous intensity activity and on at least three days per week, children should engage in activities that strengthen muscle and bone.<sup>95</sup>

Children should be given as many opportunities as possible to engage in active play and discover what they enjoy. Something as simple as a family evening walk, or daily use of public transport, encourages good habits that are more likely to lead to active behaviour in adulthood.<sup>96</sup> Outdoor play needs to be

### Percentage of Australian children meeting physical activity guidelines across different age groups

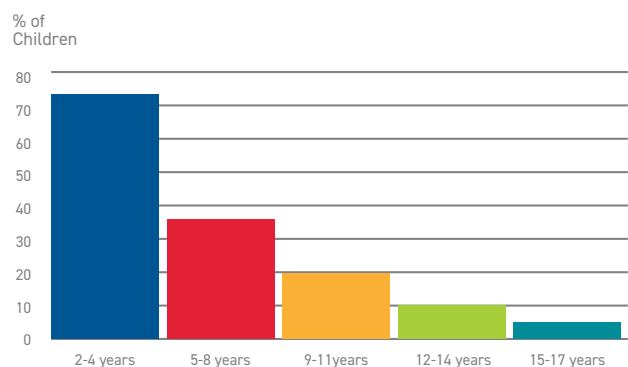


Figure 1. Source - Active Healthy Kids Australia (2016)<sup>94</sup>



## Australia's Physical Activity Guidelines for Children

Age	Minimum Recommended Hours of Physical Activity
Infants aged Birth to 1 year	Supervised interactive floor-based play in safe environments should be encouraged from birth. For those not yet mobile, 30 minutes of tummy time including reaching and grasping, pushing and pulling and crawling spread throughout the day during awake periods is encouraged.
Toddlers aged 1 to 2 years	180 minutes a day doing a variety of physical activities including energetic play such as running, jumping and twirling spread throughout the day.
Pre-schoolers aged 3 to 5 years	180 minutes a day in a variety of physical activities, of which 60 minutes is energetic play such as running, jumping, kicking and throwing, spread throughout the day.
Children aged 5-17 years	60 minutes of moderate to vigorous intensity physical activity every day.

*Adapted from Australian Government Department of Health. Australia's Physical Activity and Sedentary Behaviour Guidelines (2017)<sup>95</sup>*

encouraged by both families and by wider society, with provisions being made so children are not dissuaded from being outdoors.

The US National Academy of Medicine conducted a review of evidence for physical activity in schools.<sup>91</sup> It found that for maximum health benefit, early and ongoing opportunities for physical activity are needed. The review also reinforced the concept that childhood habits will track through to adulthood. To be effective, however, a physical activity program for children must align with predictable developmental changes in children's exercise capacity and motor

skills, which affect the activities in which they can successfully engage.

Physical activity programs can also be specifically targeted to improve psychosocial outcomes such as self-concept, social behaviours, goal orientation, and most notably self-efficacy, important determinants of current and future participation in physical activity. Varied exercise regimes, including aerobic and resistance exercise, structured and unstructured opportunities and both longer sessions and shorter bouts, will lead to the greatest benefit.<sup>91</sup>



**Summary: Active play and being physically active is an essential part of the joy of childhood. It also provides an important foundation for healthy growth and the development of lifelong physical, cognitive, behavioural, social and emotional skills.**

RECONNECT WITH:

- ✓ Bedtime routines
- ✓ Bedrooms as peaceful places





# HEALTHY SLEEP

**Healthy sleep is crucial for healthy living. Its importance is often underestimated and many everyday things we do are eroding this essential foundation for a healthy and happy life. Developing healthy sleep habits during childhood forms habits that can last a lifetime.**

Children require adequate sleep to grow and function effectively.<sup>97</sup> Insufficient sleep negatively affects a child's cognitive performance, memory, behaviour and school performance whilst increasing their risk of gaining unhealthy weight. Sleep is a time when growth hormone levels rise and the body can repair and grow.

Providing conditions conducive to sleep can help ensure children sleep well. Light stimulus from electronic screens, emotional stress and sugary or caffeinated foods and drinks late in the day, can make it difficult for children to fall and remain asleep. Discussions with children around the

Sleep durations that were shorter or longer than this period, were associated with a greater frequency of problem behaviours, lower levels of subjective wellbeing and lower scores of subjective ratings of physical health.<sup>101</sup>

Some signs of inadequate sleep in children include dark circles under the eyes, inattention, irritability, hyperactivity, depression, impatience, mood swings, impulse control issues, and aggressive behaviour.<sup>102</sup> Sleep disturbances in children are not only detrimental to many aspects of their health, but they can also affect family and caregivers. Poorer maternal mental health has been associated with poor sleep patterns of their children.<sup>99</sup>

Good sleep enables healthier food choices and exercise behaviours.<sup>100</sup> Conversely, suboptimal sleep increases risk of inflammation, autonomic nervous system dysregulation, increased sympathetic tone, oxidative stress, and increased morbidity and mortality.<sup>101</sup>

*Decreased sleep duration has been proposed as a contributing factor in increasing rates of obesity with epidemiological data supporting a link between the two in children.*

importance of sleep enables them to problem solve, finding solutions that will work best for them.<sup>98</sup>

Sleep requirements vary widely from individual to individual.<sup>99</sup> Encouraging children to reflect and listen to their bodies increases self-awareness and agency, helps them identify when they are tired, determine how much sleep they need and to develop ways to optimise quality sleep.

Patterns of behaviour, feelings of wellbeing, and measures of overall global physical health are all affected by sleep duration.<sup>100</sup> A large-scale study of 9 year old children found that a sleep duration of between 9 and 11 hours was associated with better outcomes in all of these areas.

Sleep deprivation has been shown to decrease levels of leptin, an appetite-suppressing hormone, and increase levels of ghrelin, an appetite-enhancing hormone.<sup>103-105</sup> The release of these hormones, along with growth hormone, are affected by sleep timing, duration and quality.<sup>106</sup>

The sleep-wake cycle also modulates glucose tolerance and insulin secretion, factors that are dysregulated in type 2 diabetes mellitus. Decreased sleep duration has been proposed as a contributing factor in increasing rates of obesity with epidemiological data supporting a link between the two in children.<sup>106,107</sup>

Reduced sleep duration has been shown to affect us down to the level of our genetic blueprint. Telomeres



are DNA sequences that cap and protect the end of our chromosomes. The shortening of telomeres occurs naturally when cells divide and as we age.

Shorter telomere length is correlated to greater frequency of chronic diseases and premature death.<sup>108</sup> There is evidence that finds correlations between shorter telomere length in children and inadequate sleep duration.<sup>109</sup>

Reasons for decreased sleep duration (or poor sleep quality) in children can be due to the use of electronic media prior to bedtime. This includes games, TV, social media and internet surfing, as these activities provide visual and cognitive stimulation that increases heart rate, blood pressure and stress levels, making it more difficult to fall asleep.<sup>104,110</sup>

Likewise, sugary or caffeinated food and drinks, or eating prior to bedtime, contribute to sleep difficulties. Eliminating or reducing these factors will contribute to alleviating much modern child sleep debt.<sup>71</sup>

Sleep problems may also be due to anxiety in children stemming from a variety of causes such as fear of the dark, being bullied and pressure from school or from social media. Addressing areas of anxiety is of primary importance, however, ensuring that pre-bedtime activities are relaxing and calming will assist in healthy sleeping.<sup>102</sup>

Other issues, such as obstructive sleep apnoea, should be considered, along with any other factors that may be keeping them awake or affecting quality of sleep.<sup>102</sup>

Healthy sleep interventions, including sleep hygiene education, can improve sleep quality and duration, reduce Body Mass Index (BMI), decrease sedentary behaviour and decrease fatigue.<sup>112</sup>

Consistent bedtimes can enhance cognitive performance in spatial awareness, memory recall, mathematics and reading skills.<sup>113-116</sup>

Bedtime rituals are also helpful for preparing the body for sleep. These can include setting regular sleep and wake times, teeth cleaning, book reading,

*Almost half (43%) of all children regularly use screen-based devices at bedtime and one in four (26%) of these children are reported to have sleep problems related to screen use.*



**KEY ACTIONS:**

- ✓ Remove all electronic devices from bedrooms
- ✓ Set bed times and wake up times
- ✓ Keep the bedroom dark, quiet and at a comfortable temperature
- ✓ Create rituals to help prepare the body for sleep

### Sleep recommendations

Age	Recommended Hours of Sleep
Infants aged 0-3 months	14 to 17 hours of good quality sleep, including naps.
Infants aged 4-11 months	12 to 16 hours of good quality sleep, including naps.
Toddlers aged 1-2 years	11 to 14 hours of good quality sleep, including naps with consistent sleep and wake-up times.
Pre-schoolers aged 3-5 years	10 to 13 hours of good quality sleep (may include a nap), with consistent sleep and wake-up times.
School-aged children 6-13 years	9 to 11 hours of good quality sleep.
Teenagers	8-10 hours of good quality sleep.

Adapted from Centers for Disease Control and Prevention (2018) & National Sleep Foundation (2018)<sup>111,120</sup>

drawing, listening to stories or mellow music. The sleep environment is an important factor in healthy sleep.

Ensuring a child's room is conducive to sleep includes making it dark, cool and quiet, making

sure toys are put away and the room is uncluttered, and all electronic equipment is off or removed.

Reducing anxiety related to not being online can be alleviated by getting children to tell their friends they are going offline.<sup>117,118</sup>



**Summary: Healthy sleep is an essential building block for normal growth and development in all children – it results in better physical and mental health. Unfortunately, the importance of healthy sleep is often underestimated, and many children are suffering from poor quality or inadequate sleep. Families play a central role in providing environments that facilitate better sleep, and help children acquire healthy sleep behaviours that serve them for the rest of their lives.**

# POSITIVE SCREEN TIME

**Significant time watching or interacting with a screen is a reality for children in the modern world. While digital technology offers some benefits and is now part of life, the evidence of the importance of face-to-face human interaction and connection for normal development and learning is overwhelming. The challenge is therefore to ensure the time spent on screens are as positive as possible.**

We live in a digital world where electronic screens of many kinds are a common part of people's lives. Online interaction appears to be the 21st century's principal form of communication for many people. While current evidence is not strong, digital media appears to have some potential positive impacts on young people's lives, including increasing social

provides worldwide platforms to connect children from anywhere in the world, in real-time.<sup>123</sup>

The internet is a powerful educational tool with unlimited access to information, online learning activities, and apps and games with positive outcomes such as increasing social skills and compassion. For example, some movies and TV programs can expose your child to diversity, whilst websites that get children making up stories or rhymes can foster creativity.<sup>124</sup> It is recommended that apps chosen for individual children are based on their likes and learning needs, such as a drawing apps, memory quizzes or nonviolent games.

Some computer games and apps focus on health and are designed to help children develop healthy social skills and encourage physical activity, whilst others

*Technology and social media, used responsibly, can enrich one's life, however, they are powerful tools that need to be used with discretion.*

connections, assisting with homework and enabling teenagers to develop their identities and share creative projects.

Unfortunately, however, much on-screen activity is designed to be addictive and can displace activities that are necessary for health and wellbeing such as sleeping, playing outside, communicating with friends and with family face-to-face, pursuing a sport, learning a musical instrument, finishing schoolwork or simply resting and dreaming.<sup>121,122</sup> Technology and social media, used responsibly, can enrich one's life, however, they are powerful tools that need to be used with discretion.

The potential of digital interconnectivity is vast. It can increase children's awareness of others, inspire them through knowledge of our world and other people's lives, aid connectivity with other children and expand their friendship networks. The internet

teach problem-solving skills, decision-making, logic skills or perseverance to achieve goals.<sup>123,124</sup>

It is important to reiterate that the evidence of benefits from many of these 'apps' and programs remains inconclusive.

Computer screens are not just used for social media or internet activity. Watching movies and TV programs on computers and phones, is common-place. Again, appropriate movies and TV shows can expose children to places, animals, people, ideas, issues and cultural diversity.<sup>124</sup>

The internet provides opportunities for isolated children to connect with others with similar minds and interests. Children and young people are less likely to access physical health services, especially if they are marginalised or isolated, however, through the internet children can access information that can assist in managing mental and other health disorders.<sup>125</sup>



RECONNECT WITH:

- ✓ Friends and family face-to-face
- ✓ Games with friends off screen

Unfortunately, there is also evidence that reveals a disturbing level of 'contagion' of negative affects facilitated by the same social media - producing negative impacts on children's mental health.<sup>126,127</sup> Indeed, social media connection does not always translate to feelings of true connection and can contribute to feelings of isolation.<sup>128</sup>

Without appropriate controls, children can become hyper-connected and hyper-alert, continually waiting for any new social media message, a state that is detrimental to focus, attention and mental wellbeing.<sup>121,122</sup> The screen in every child's pocket can become a captor rather than a liberator, with screen usage developing into patterns of addictive behaviour and screen time becoming the dominant activity of every day.<sup>129</sup>

The Australian Government, as part of its Physical Activity and Sedentary Behaviour Guidelines for Children recommends that electronic media use for entertainment purposes be limited to a maximum of two hours per day for children aged 5 to 17 years.<sup>88,95</sup> Research shows, however, that 60% of primary school aged children and 85% of high school children

exceed Australian Government recommendations for daily maximum times using electronic media for entertainment.<sup>119</sup>

On average Australian children spend:<sup>119</sup>

- 4.6 hours every weekday on screens
- 4.5 hours every weekend day on screens
- 21% of teenagers screen time is 12 hours or more on a typical weekday
- 49% spend six or more hours using screen-based devices on a typical weekend day

### Average hours Australian children spend on screens at home per week across age groups

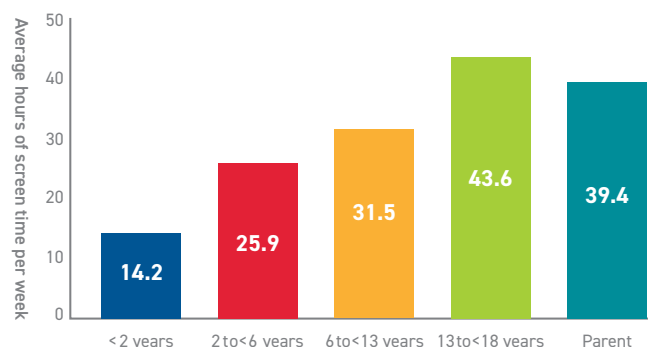


Figure 2. Source - Royal Children's Hospital Melbourne (2017)<sup>119</sup>

## Screen Time Advice

Age	Guidelines
<b>Infants (birth to 1 year)</b>	Infants should also not spend any time watching television or using other electronic media (DVDs, computer and other electronic games) and instead, when sedentary, the caregiver is encouraged to engage with them through activities such as reading, singing, puzzles and storytelling.
<b>Toddlers (aged 1-2 years)</b>	For those toddlers younger than 2 years, screen time is not recommended during sedentary periods. For those aged 2 years, screen time should be no more than 1 hour in total throughout the 24-hour period - less is better. When toddlers are sedentary, the caregiver is encouraged to engage with them through activities such as reading, singing, puzzles and storytelling.
<b>Pre-schoolers (aged 3-5 years)</b>	Sedentary screen time should be no more than 1 hour in total throughout the 24-hour period - less is better. When pre-schoolers are sedentary, caregivers are encouraged to engage with them through activities such as reading, singing, puzzles and storytelling.
<b>Children (aged 5-17 years)</b>	Should minimise the time they spend being sedentary every day. To achieve this: (i) limit use of electronic media for entertainment (e.g. television, seated electronic games and computer use) to no more than two hours a day (ii) break up long periods of sitting as often as possible. <sup>95</sup>

Adapted from Australian Government Department of Health. Australia's Physical Activity and Sedentary Behaviour Guidelines (2017)<sup>95</sup>



#### KEY ACTIONS:

- ✓ Have clear rules for screen times
- ✓ Plan offline activities to ensure balance
- ✓ Locate devices in a shared or visible space

*60% of primary school aged children and 85% of high school children exceed Australian Government recommendations for daily maximum times using electronic media for entertainment.*

For younger children, unsupervised use of screens while a child is sedentary for long periods of time, often is at the expense of social interaction with parents and carers and can lead to:<sup>95</sup>

- language delays
- reduced attention spans
- lower levels of school readiness
- poorer decision-making

Screen time in excess of Government guidelines, has negative consequences across all the foundations of wellbeing discussed in this report, and the problem is widespread.

Around two-thirds of Australian parents report family conflict over the amount of time spent on screens, particularly at night.<sup>119</sup> Screen time not only displaces sleep time, but also interferes with sleep quality. Daytime and bedtime use of electronic devices is correlated to increased risk of short sleep duration,

long sleep onset latency and increased sleep deficiency.<sup>130</sup> Poor sleep patterns can then lead onto other health problems like obesity, decreased school performance and increased stress, all of which adversely impact a child's wellbeing.<sup>71,131</sup>

Excessive screen time, and its consequent impact on wellbeing, is consistently associated with poorer mental health.<sup>132</sup> Children who watch more television have higher rates of anxiety, depression, and post-traumatic stress and are at a higher risk for developing sleep disturbances and attention problems, displaying violent and aggressive behaviours, early sexual activity and substance abuse.<sup>133</sup> Excessive TV viewing and mobile phone use may contribute to the development

connectivity<sup>137</sup>. Excess screen time has also been linked with obesity, independently of physical activity.<sup>138</sup>

It is important to appreciate that children's demands for entertainment do not need to be acceded to. There is accumulating evidence that boredom can be beneficial – indeed, boredom appears to play an essential role in creative thought and developing resilience.<sup>139-141</sup>

Positive screen time is essentially about quality and quantity control. Talking to children about the ways media can affect their health, wellbeing and enjoyment of life can be challenging. A brief questionnaire developed by the Center on Media and Child Health is designed to help parents, care-givers and children

*Daytime and bedtime use of electronic devices is correlated to increased risk of short sleep duration, long sleep onset latency and increased sleep deficiency.*

of depression.<sup>134,135</sup> Negative symptoms and impacts increase with the greater amount of time spent in front of electronic screens for both girls and boys and is especially evident for those spending more than 4 hours every day on any kind of screen activity.<sup>135</sup>

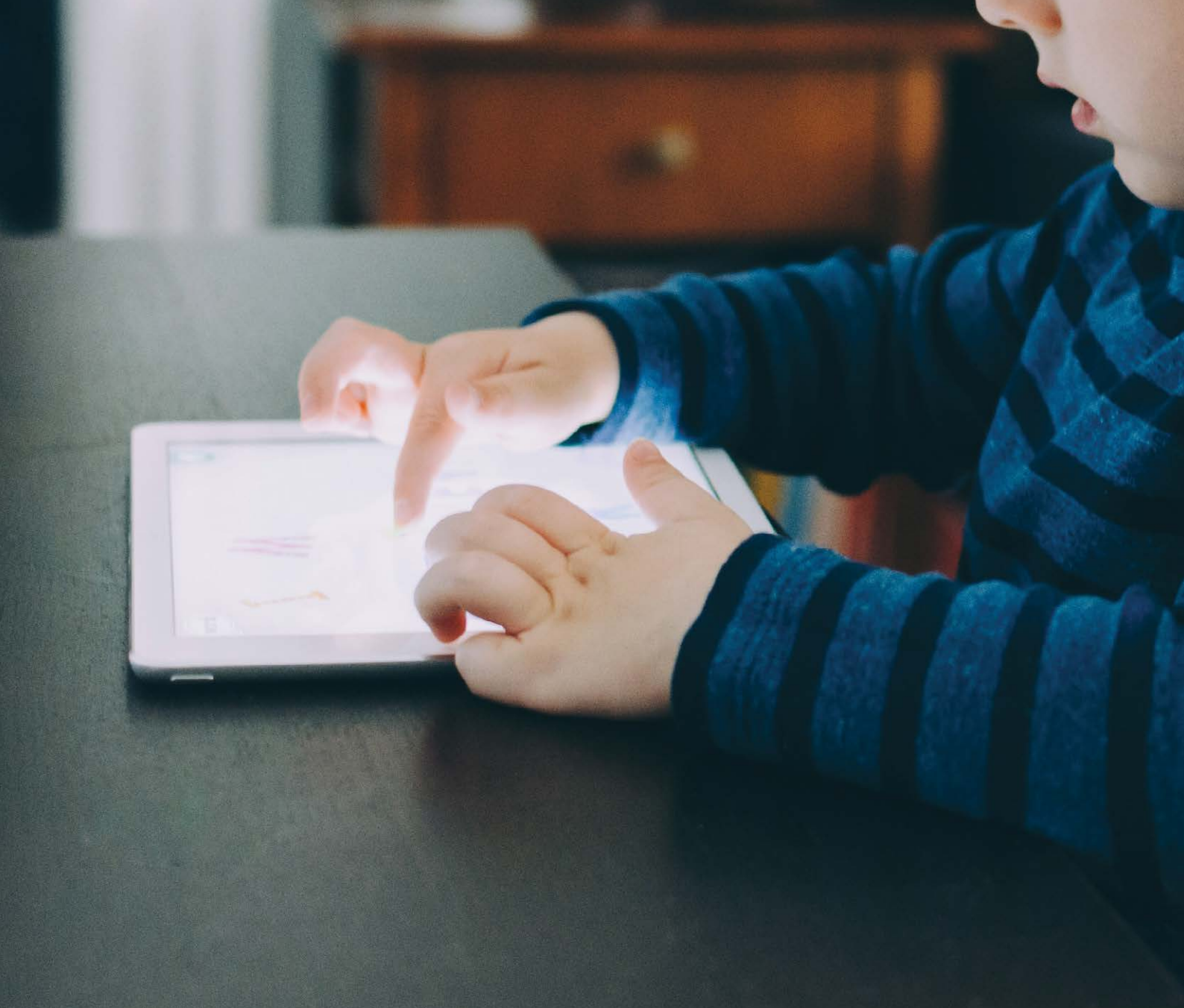
There are other concerns around excess screen time, ranging from exposure to predatory behaviours, pornography and violence, to physical health risks such as eye strain and neck strain. Cyberbullying is widespread, with 15-20% of primary school children experiencing such an incident.<sup>136</sup> Children can mimic (or be influenced by) negative behaviours, stereotypical representations of gender, violent imagery or coarse language that is difficult to filter in a world of hyper

explore impacts of screen use and provides a useful starting point.<sup>131</sup> Sometimes even with agreed time limits on screen usage, turning off can be challenging.

Children become immersed in screen activities which have been specifically designed to plug into human neurological reward systems. Providing children with a 'bridge' out of an engrossing game, by sitting with them at their screen and asking about the activity they are engaged in, can help with this transition.<sup>142</sup>

Screen time can be interwoven into family time, where online activities, movies or a TV series can be watched together. It is important that there is also screen-free family time especially during meals, play, socialising and relaxation.





Parents should become involved with program and game choices, with active engagement in the things that interest the child. Games are rated by the Entertainment Software Ratings Board (ESRB) to assist appropriate choices, however, it is recommended that parents play through the game first and consider online reviews. Usage limits for screen-based games need to be established using the recommended times as a reference and extra time should not be used as a reward. A screen time plan is often useful. It can be

helpful to also filter access to screen-based devices and if possible provide an open location for those devices.<sup>143</sup>

It is essential that parents model a good example and monitor their own screen time - putting their phone away at meal times and so on. Children watch their parents and have offered interesting perspectives on their parents' use of devices such as smart phones.<sup>144</sup> Positive screen time is all about balance.<sup>143</sup>



***Summary: Children (and especially infants) need positive and close interaction with the adults who care for them – these close connections serve to shape lifelong health and development. Screen time can take away from those essential interactions, but digital devices are a reality for most children in the modern world. The challenge is learning when, and most importantly how, to turn screens off and appreciate what is lost if you don't.***



# CONCLUSION

While children in Australia are generally healthier than they have ever been, an increase in problems such as obesity, depression, anxiety, social disconnection and the fast pace and high expectations of an information-rich, digital world, threaten the lifetime health of young Australians. However, evidence suggests that there are practical and achievable approaches that can protect our children's wellbeing. Emerging scientific evidence supports these actions as a way of providing a healthy start to life.

The practical, essential action areas for every child include:

**1. Safety, Security, Love and Belonging – talk, listen, read, play, sing, dance and hug every day.**

**2. Healthy Eating and Drinking - food prepared and enjoyed together. A balanced diet full of fresh fruit and vegetables, with a priority focus on whole and unrefined foods. Water as the preferred drink.**

**3. Active Play - encouraging creativity and imagination. Be more interactive. Playing sports and games that children enjoy and spending time outside.**

**4. Healthy Sleep - a priority for all the family. Healthy sleep hygiene and developing a bedtime routine.**

**5. Positive Screen Time - use digital technologies to aid, rather than dominate, living by learning to use the off-button to limit screen time and avoid cyber-addiction. Monitor the online 'playground'.**

Parents, caregivers and the broader community can all play a role by recognising (and then supporting) the absolute importance of children's earliest years of life – for children in the present and the adults they will become.



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