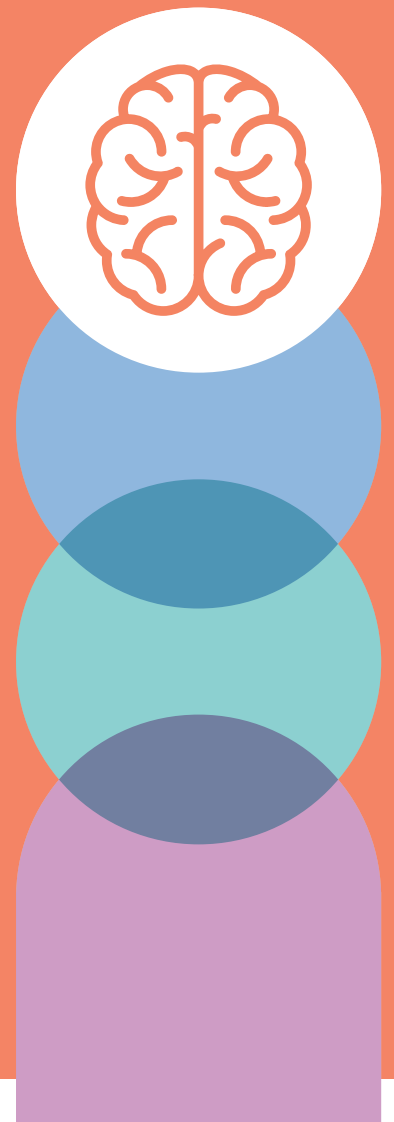


## PART 2 Health and wellbeing

The way that young children interact, engage with and experience digital technologies can have positive or detrimental implications for health and wellbeing. This includes their physical activity, posture, vision, sleep and emotions.

**The guiding principle for Health and Wellbeing is: Young children's health and wellbeing is actively supported in digital contexts.**



## 2.1 Digital technologies and physical activity

Regular physical activity is important for young children's health and development (Active Healthy Kids Australia, 2022). Children benefit from physical activity that makes them breathe hard to stimulate their lungs, heart and blood vessels. Physical activity that uses energy from sugars and fats helps encourage a healthy metabolism. It also builds strength in children's muscles, joints and bones; challenges the coordination of hands, eyes and limbs; and delivers cognitive and social benefits.

Physical activity in infancy starts with activities like 'tummy time', which helps babies build strong neck muscles. These muscles are needed so that babies can sit and reach for objects and develop their trunk coordination. For older children, crawling, walking and running help develop the muscular and nervous systems that promote coordination and physical development.

Digital technologies can be used to support or provide whole-body movement opportunities for young children, which assist with physical development. These can include:

- playing with social robots, interacting with augmented reality, or playing electronic games using devices that require large movements (e.g. playing on an electronic dance mat)
- interacting with screen-based devices to research tasks or learning inquiries that involve physical activity (e.g. watching a video tutorial on how to prepare the soil when planning a vegetable garden, or using a video tutorial to learn a specific gross motor skill)
- using functions on mobile devices to record physical activity (e.g. recording activities such as jumping, skipping or climbing and re-watching these to refine learning of the skill and provide encouragement—slow-motion or timelapse modes offer opportunities for new perspectives on these skills)

- wearing technologies to measure levels of physical activity with children (e.g. measuring children's daily activity levels in the classroom when learning about health and wellbeing).

Virtual reality immerses children in a totally virtual world viewed through a headset. Virtual reality headsets should be used with caution as they may cause dizziness and feelings of disorientation (Kaimara et al., 2022), sore eyes, and the weight of the headset may cause neck discomfort (Kim et al., 2020) in young children. Augmented reality shows children the real world with a computer-generated image overlaid. Augmented reality can be viewed with a headset or on a hand-held tablet or smartphone. Educators may find hand-held augmented reality devices provide more natural opportunities for movement in the classroom or outdoors than virtual reality. When children use digital technologies for movement opportunities it is important that they develop an awareness of their physical surroundings, so they do not bump into other people or trip over objects in their environment. Children can learn when it is appropriate to use digital technologies and move around at the same time (e.g. avoiding screen use when walking in public places or listening to audio near roads or transport).

Digital technologies that incorporate handheld controllers, haptics (that respond to touch or motion), styluses and touchscreens require a certain degree of fine motor skill. There is some evidence that fine motor skills, such as pinching, dragging and pointing, may be developed using touchscreen technologies (Bonneton-Botte et al., 2020). It is important that young children also develop their fine motor skills by participating in three dimensional non-digital activities traditionally used in early childhood education and care settings, such as modelling with clay, threading and puzzles, managing clothing, learning to write, and using hands or utensils for eating. Children may feel discomfort if they do the same movement repeatedly, such as rapid tapping or swiping on touchscreen devices, leading to

decreased hand function (Radwan et al., 2020). Educators may consider avoiding digital activities that involve children performing rapid, repeated fine movements.

Young children do need periods of sedentary behaviour to rest and recuperate after participating in physical activity. Children routinely engage in sedentary behaviours during the day, for example, when listening to a story, sitting in a pram or travelling in a vehicle. However, too much sedentary time is not healthy for young children. Consuming digital media on screens or playing electronic games can involve long periods of sitting. High amounts of screen viewing by children has been shown to contribute to poor health outcomes, such as obesity and low bone strength (Li et al., 2020; de Lamas et al., 2021). It has not been established whether these outcomes are due to snacking in response to junk food advertising on television, the displacement of physical activity by screen viewing, or by the actual time spent sitting. Excessive sitting and long periods of uninterrupted sitting have been linked to poor physical and mental health in adults (Biddle et al., 2021), although this link is less evident for children (Renninger et al., 2020).

The *Australian 24-Hour Movement Guidelines for the Early Years* (Australian Government Department of Health, Disability and Ageing, 2017) advise against extended sitting for young children and against restrained sitting for more than one hour. They also recommend no sedentary screen-based digital technology use by children under two years of age, and no more than one hour per day of sedentary screen use by children aged two to five years. The guidelines also indicate that toddlers and preschool-aged children should spend at least 180 minutes of their awake-time being physically active every day. For preschoolers, this should include at least 60 minutes each day of energetic play that makes them 'puffed'. Energetic play involves activities such as jumping, leaping, dancing, chasing, swimming, digging, climbing and bike-riding. Encouraging children to be less sedentary and more physically active helps them develop lifelong health-promoting habits.

## 2.2 Digital technologies and posture

Children's physical flexibility, strength and coordination develop when they use different postures in their everyday activities. Children can use digital technologies in ways that promote different postures. For example, when children lie on their stomach to play with screen technologies they develop stronger back and neck muscles. Likewise, playing with digital technologies such as robots involves crawling and moving around on the hands and knees. This can help build stronger shoulder and hip muscles. Sitting with legs straight out in front while watching television encourages leg flexibility. Standing at a bench or low table while video-chatting with friends will provide opportunities for children to develop standing balance.

Maintaining the same posture for a long period of time can result in children experiencing physical discomfort. Young children will start to feel uncomfortable more quickly in postures that are awkward or near the end of movement, such as bending their neck while drawing, writing or using a touchscreen device. There is mixed evidence for whether neck pain and back pain are related to screen use (Baradaran Mahdavi et al., 2022; Guerra et al., 2023) and there is currently a lack of Australian Government health guidelines on posture for children. However, sustained and awkward postures, along with repetitive movements, are risk factors for musculoskeletal disorders in adults (Prasetya et al., 2024). Educators can offer children a combination of diverse technology-based experiences, such as coding or social robots, digital microscopes, and augmented reality to provide opportunities for various body positions while using technologies.

**'Encouraging children to be less sedentary and more physically active helps them develop lifelong health promoting habits.'**

## 2.3 Digital technologies and vision

Regular visual stimulation helps develop young children's eyes and brain. Infants develop focus, depth perception, facial recognition and tracking in the first year of life. Young children are also developing eye–hand and eye–body coordination to support fine motor and gross motor skills in the early years of life. Children's use of screen-based technologies such as televisions and touchscreens may have implications for vision development and coordination. These technologies provide flat visual targets that young children may find attractive and stimulating. However, the development of depth perception requires coordination of both eyes and interpretation in the brain. This development is supported by regular viewing of 3D objects (Ayzenburg & Behrmann, 2024).

When children are a few months old, they require opportunities to focus on objects positioned at a variety of distances. Spending too much time focused on something static very near may result in discomfort for children and limit opportunities for looking at objects that are different distances away. There is mixed evidence on whether too much screen use is linked to eye problems in children (Lanca & Saw, 2020). There is a concern that short-sightedness in children is associated with more frequent participation in near-vision activities (e.g. book reading, using computers, completing writing for schoolwork) (Harrington & O'Dwyer, 2023). However, available evidence suggests that short-sightedness is linked to insufficient exposure to sunlight, which can occur when children do not have enough opportunity to play outdoors (Mackey, et al., 2025).

Glare and reflection can make it difficult for children to see what is happening on digital screens and lead to eye discomfort. Educators should also consider the impact of screen glare and reflections when using digital technologies in educational settings.

## 2.4 Digital technologies and sleep

Sleep duration, quality, timing and regularity are critical for young children's healthy development. Children who have irregular sleep habits, do not get enough sleep every night, or frequently have interrupted sleep, are at risk of health and wellbeing problems. These problems include being overweight and obese, experiencing depression, and/or having poorer emotional regulation than those children who regularly experience better sleep (Dutil et al., 2022). The Australian Government recommends:

- 10–13 hours of sleep per day for three- to five-year-olds
- 11–14 hours per day for one- to two-year-olds
- 12–16 hours per day for babies aged four to 11 months
- 14–17 hours per day for babies aged birth to three months.

(Australian Government Department of Health, Disability and Ageing, 2021.)

Children's sleep can be affected by screen-based digital technologies. High amounts of screen viewing, especially before bedtime, can result in reduced quality and duration of sleep for children (Zhang et al., 2020; Mallawaarachchi et al., 2022). This effect may be partly due to bright light from screens influencing the release of sleep hormones. While children may be more sensitive to light than adults (Hale et al., 2024), recent evidence suggests light from screens has only a small impact on the time it takes for children to go to sleep (Bauducco et al., 2024). However, time spent on digital devices may displace time for sleep (Bauducco et al., 2024). Using digital technologies during time intended for sleep should be avoided. Expert consensus is that overly stimulating content viewed before sleep can impact on sleep (Hale et al., 2024).

## 2.5 Digital technologies and emotional wellbeing

Emotional wellbeing is critical for young children to thrive. Children experience positive and negative emotions. Learning to recognise and understand their different emotions helps children to manage their behaviours in social situations.

Children may associate using digital technologies with positive feelings. As with any non-digital activity, a child who is engaged with digital technology they are enjoying is likely to feel happy and satisfied. Children can also feel positive emotions when they achieve success with digital games, apps, voice activation or are interacting with digital content. Depending on the design of the digital activity, using digital technologies may help young children learn to concentrate on one task for an extended period, and can also provide opportunities for children to develop agency (Bittner, 2021).

While research shows that digital technologies can provide children with learning and development opportunities such as skill mastery, concentration and self-regulation, children can also become attracted to using digital technologies. Evidence of an association between using screen-based digital technologies and emotional control is mixed (Corkin et al., 2021). However, designers of digital games, apps and other digital technologies aim to create highly engaging experiences for users. These experiences can include tailored content or built-in rewards, such as digital game money. When children play games with built-in rewards, they may experience similar neural responses that adults have when gambling. Educators can teach children about some of the ways that apps and games can be specifically designed to keep people using them.

The immediate feedback experienced by children engaging with digital technologies can be enticing. When children experience frustration or disappointment within a game or are asked

by an adult to end their digital activities, this can lead to challenging behaviours (Coyne et al., 2021). Sometimes these behaviours are interpreted as 'technology tantrums' or a reluctance to participate in other non-digital activities. Early childhood educators recognise that leaving an absorbing activity is not always easy. In these situations, young children benefit from adults helping them with time-management strategies and emotional support. Establishing timeframes for technology use, providing children with some control over changing tasks, creating excitement for a non-digital activity, and helping children to plan when they can return to using technologies supports children with self-regulation (Zabatiero et al., 2024).

Adults can use digital technologies to distract children. This can be helpful in situations where children may need to be calm and patient. At other times, adults may use digital technologies to distract children from their feelings. While this can be a helpful short-term strategy, distraction from emotion is not the same as experiencing and responding to feelings (Coyne et al., 2021). Children may benefit from adult support to manage their feelings without using digital technologies.

Reviews suggest that high use of screen-based technologies has a small association with anxiety and depression in children (Eirich, 2022; Zou et al., 2024). However, it is not clear if this occurs because using screens leads to negative emotional outcomes for children, or if children who are already unhappy are attracted to using screens to manage their feelings (Neville et al., 2021). Young children will benefit from adult interaction to help them identify alternative activities to using screens. These may be non-digital activities such as drawing, building with blocks, or playing on climbing equipment outside. It could also involve using technologies that rely on children moving their bodies, such as playing with a robot or dancing to music. Digital technologies that promote physical activity can be helpful because there is a positive relationship between movement and mood (Li et al., 2022).



# Health and wellbeing

**Principle: Young children's health and wellbeing is actively supported in digital contexts**

**Practice advice:**

**01**

Provide a range of digital and non-digital experiences for young children that help them move their bodies, including being outside in natural light using sun-safe practices.

**02**

Ensure children participate in non-digital activities to build strength and skills in their hands and fingers.

**03**

Ensure that screen-based digital technology use while sitting is only for short periods and does not replace periods of active physical movement.

**04**

Promote postural change by providing a variety of digital technologies that invite children to use their bodies in different spaces and at a range of heights.

**05**

Minimise screen glare and reflection and promote regular visual breaks with a variety of visual distances when using screen-based technologies.

**06**

Support families to promote screen-free sleeping areas and understand that exposure to disturbing or stimulating content, especially before sleep, may decrease the length and quality of children's sleep.

**07**

Help children develop self-regulation for using digital technologies and support them to transition between digital and non-digital activities.