



VIEWPOINT

Television viewing behaviour among pre-schoolers: Implications for public health recommendations

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Excessive television (TV) viewing in early childhood has been associated with adverse cognitive and behavioural outcomes.^{1–3} A recent review of the literature revealed that TV viewing in the formative pre-school years has also been linked with other health concerns including sleep difficulties, increased aggression, anxiety and obesity.⁴ Given that early childhood is the time in which the foundations for future behaviours and habits are established and evidence shows that TV behaviours track from early childhood to adolescence,⁵ it is not surprising that there has been much interest in determining an 'appropriate' amount of screen time for pre-schoolers. The aim of this paper is to review current recommendations around Australian pre-school children's TV use and the implications of these guidelines when we consider current data pertaining to young children's TV viewing behaviour.

Current TV Viewing Recommendations

Time-based recommendations

To date, Australian screen time (i.e. TV, DVD and computer use) recommendations have been predominately 'time-based'. In 2004, the Department of Health and Ageing proposed national guidelines which recommended that children aged 5–12 years should spend no more than 2 h a day using electronic media; pre-school-aged children were also encouraged to limit their TV and video exposure.⁶ These guidelines are the same as those currently recommended by the American Academy of Paediatrics⁷ and other developed countries.⁸ Recently, new Australian recommendations have been developed, which propose that for pre-school children aged 2 to 5 years, screen time should be limited to less than 1 h per day.⁹ The rationale for the recommendation is that time spent viewing TV can displace both physical activity and social interaction.¹⁰ Furthermore, the new guidelines outline the importance of physical activity for children under 5 years of age, recommending at least 3 h a day in active play, through which young children can learn valuable movement and communication skills.¹⁰ Although TV viewing guidelines have recently been altered, they are only concerned with limiting pre-school children's TV exposure.

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What is Missing from Current TV Viewing Recommendations?

The issue of TV food advertising

Another 'hot topic' in discussions about children's TV viewing behaviour is the negative impact TV food advertising can have in shaping young children's dietary patterns and consequent weight status.¹¹ In Australia, children are exposed regularly to large volumes of 'unhealthy' food marketing, with the most commonly advertised foods being energy-dense, nutrient-poor foods such as fast foods, sweetened breakfast cereals, confectioneries, savoury snacks and soft drinks.^{12–15} This is concerning, given that food marketing has been found to influence children's food preferences and beliefs, purchase requests and short-term consumption.^{12,16,17} Given that TV advertising has frequently been identified as the most effective method of reaching young children, it is the predominant form of food promotion in Australia.^{18–20}

With the high prevalence of childhood overweight and obesity, it is not surprising that the Australian National Obesity Taskforce has recommended 'better protection for young people against the promotion of high-energy, poor nutritional value foods and drinks and/or sedentary lifestyles through advertising and media that encourage unhealthy eating, inactivity and overweight'.²¹ In response to this recommendation, the Commonwealth Government has encouraged changes through government regulation, industry self-regulation and new TV initiatives.²² These included providing funding to help establish ABC3, a new children's channel that provides age-appropriate, advertising-free programmes,²² and an increased focus on monitoring and evaluating self-regulatory measures in order to reduce children's exposure to the marketing of 'unhealthy' food products.²³ For example, the Australian Food and Grocery Council has recently introduced the 'Responsible Children's Marketing Initiative', a framework that encourages food and beverage companies to only market 'healthy' choices to children.²⁴ Alarming, two recent reports have concluded that food companies are able to circumvent self-regulatory code and continue advertising 'unhealthy' foods.^{24,25} While great interest has been sparked in the area of TV food advertising and efforts have been made to control young children's exposure, it is evident that policy makers have failed to incorporate this issue into current screen time guidelines for parents.

TV's influence on eating and physical activity habits

It is apparent that current recommendations around pre-school children's TV viewing habits have focused on limiting exposure

simply in terms of time. However, there is also a body of literature which indicates that TV may affect children's health adversely through alternative pathways, namely eating while viewing and displacing physical activity.^{26–31} Several studies have demonstrated that increased TV viewing in the pre-school years is associated positively with total energy intake.^{26,27} Increased TV viewing has also been associated with greater consumption of snacks; higher intakes of sugar-sweetened beverages, high-fat foods and takeaways; and lower intakes of fruits and vegetables.^{26–29} Additionally, watching TV has been found to decrease children's awareness of food consumption (often resulting in greater food intake) and encourages the development of non-hungry eating habits.³² These studies indicate that TV viewing is associated with both increased food consumption (greater overall energy intake) and, possibly, poorer quality diets (increased intake of energy-dense foods).

Another way TV viewing is thought to impact pre-school children's health negatively is through the displacement of physical activity. Being a sedentary behaviour, excessive screen time is thought to reduce the amount of time children spend engaged in physical activity.^{26,28,30,31} Consequently, research into the impact of TV viewing on children's activity levels has focused on classifying TV viewing as a 'sedentary' behaviour. Given that young children's typical physical activity patterns are 'characterised by short intense bursts of activity broken up by periods of rest or low intensity activity',¹⁰ it is interesting that researchers to date have not sought to determine whether pre-schoolers are in fact sedentary while watching TV.

Interestingly, the Royal Australasian College of Physicians³³ released *Getting in the Picture – A Parent's and Carer's Guide for the Better Use of Television for Children*, which prompted parents to develop their own rules or guidelines for each family member's TV use. In relation to food advertising, eating while viewing and displacement of physical activity, parents were advised as follows:

- 1 'Teach your children about television advertising' (p. 11).
- 2 'Think about your attitudes to television, and your viewing habits, which may promote bad television viewing habits by your children . . . if you regularly snack on high fat foods and/or eat meals while you watch television, it is likely that your children will copy your behaviour' (p. 3).
- 3 'Plan family activities (such as mealtimes) where the television is turned off to encourage more discussion and fun activities' (p. 4).
- 4 'Eating high fat snack foods whilst watching television increases the chance of putting on extra weight. It is important to plan a balance between watching television and more physically active (and fun) activities' (p. 3).

While these suggestions highlight the importance of TV-related eating and physical activity habits, no formal, structured guidelines were proposed.

It is clear that pre-school children's TV viewing habits are complex; it is not sufficient to develop TV viewing recommendations that are based solely on viewing time. Instead, we propose that we need to examine pre-schoolers' TV habits more holistically; that is, recommendations must also consider children's exposure to TV food advertising, food-related TV viewing behaviours (what they eat when they watch TV) and whether children are in fact sedentary while watching TV.

What are Australian Pre-school Children's TV Viewing Habits?

In order to better inform TV viewing recommendations, it is important that we develop a better understanding of Australian pre-school children's 'typical' TV viewing behaviours, including viewing time, content of TV watched, caloric intake and concurrent activities.

A recent study by Cox *et al.*³⁴ evaluated the association between pre-school children's TV viewing habits and their body mass index. It was found that that on the average (across two weekdays and one weekend day), pre-school children exceeded the recommended amount of no more than 1 h/day; the average daily time children spent watching TV was 91 min. This is consistent with the findings of other Australian studies examining pre-school children's TV exposure.^{35–37} In addition to time spent viewing, Cox *et al.*³⁴ examined other TV viewing behaviours, specifically content watched and foods eaten while viewing. Interestingly, children were found to watch significantly more non-commercial TV than commercial TV on both weekdays and weekends. This finding is not surprising, given that ABC1 and ABC 2 (which have dedicated pre-school blocks) have recently been identified as the 'undisputed leader in the broadcast market'.³⁸ In relation to eating while viewing, it was found that on the average, children consumed 958 kJ while watching TV on weekdays and 916 kJ on weekends. This finding indicates that pre-school children are regularly eating while watching TV.

It is also of interest to determine whether pre-schoolers are in fact sedentary while viewing TV. Considering children's concurrent activities while watching TV, we have unpublished data from 115 of the 135 children in a paper by Cox *et al.*³⁴, which also revealed differences between commercial and non-commercial viewing. The majority of these children (92%) were predominately sitting still or lying down while watching commercial TV (on weekdays); other activities included jumping around (2.2%), active play (4.4%) and passive play (2.2%). In comparison, 77% of children were predominately sitting still or lying down while watching non-commercial TV (on weekdays); other activities included dancing (3%), standing up (2%), imitating characters (4%), active play (8%) and passive play (3%). Interestingly, on weekends, 76.1% of the children were sedentary during commercial TV; other activities included standing up (4.3%), imitating characters (4.3%), active play (10.9%) and passive play (4.3%). Comparatively, 71.2% of the children were predominately sedentary during non-commercial TV viewing (on weekends); other activities included dancing (5.7%), jumping around (4.6%), standing up (2.3%), imitating characters (4.3%), active play (10.3%) and passive play (3.4%).

Implications for Current TV Viewing Recommendations

It is clear from the findings presented earlier that pre-school children's TV habits extend beyond time; exposure to commercial TV, food intake and co-activities also characterise their viewing behaviour. Consequently, the current recommendations that suggest limiting exposure to 1 h/day,

while important, are insufficient in developing 'healthy' TV viewing habits. This is especially the case in terms of food consumption while viewing TV; regardless of TV content, pre-schoolers in the study by Cox *et al.*³⁴ regularly ate while watching TV. The association between time spent viewing TV and eating behaviour has been attributed to a number of possible mechanisms, including advertisements for 'unhealthy' foods that may influence children's food preferences and consumption of advertised foods, and TV viewing distracting viewers from the amount of food consumed, which reduces children's sensitivity to internal satiety cues and results in consumption of increased portion sizes.³² Regularly eating in front of the TV may build an association between eating and watching and, consequently, 'unhealthy' TV viewing habits. Furthermore, although the findings presented indicate that pre-schoolers are predominately watching non-commercial TV, a percentage is viewing commercial TV. Therefore, TV viewing guidelines for pre-school children may need to be modified to reflect messages about exposure to commercial TV and the possible effects eating while viewing TV may have on children's health. TV viewing recommendations may also need to be modified to include rules for parents regarding 'sedentary' TV viewing, given that our findings indicated co-activities while watching TV occur, especially when children are watching non-commercial TV. Further research that investigates concurrent activities during TV viewing is necessary in order to inform specific recommendations for active and passive screen time.

Practical Recommendations and Advice for Parents to Help Them Manage Their Pre-schoolers' TV Viewing and Habits

Based on current observations of pre-school children's 'typical' TV viewing behaviour, we believe that existing recommendations are limited in that they ignore behaviours (i.e. eating while viewing) which may impact on the development of 'healthy' TV habits. Further research that holistically evaluates pre-school children's TV viewing habits is necessary to ensure that recommendations provided to parents are evidence based. However, based on the research findings presented earlier, we suggest that current guidelines should reflect the following (see Table 1): (i) for time spent watching TV, limit the screen time to no more than 1 h a day; (ii) for the impact of content viewed, limit the screen time to advertising-free programmes, that is, ABC channels and DVDs; (iii) for eating while viewing TV, limit the food intake while watching TV; and (iv) for concurrent behaviour while viewing, encourage active TV viewing.

In addition to these guidelines, similar to the *Getting in the Picture* handbook, we believe it would be useful to also include suggestions to help parents achieve these guidelines. These could include the following:

- 1 Model good TV viewing habits. Try to limit one's own screen time to no more than 1 h a day. If children see parents sticking to the guidelines, it is likely they will, too.
- 2 Create a time slot for viewing of favourite programmes or recording of favourite shows. This way, parents can control the time spent watching.

Table 1 Proposed recommendations to help parents manage pre-school children's TV viewing

Issue	Example recommendation
Time spent watching TV	Limit screen time to no more than 1 h a day
Impact of content viewed	Limit screen time to advertising-free programmes, that is, ABC channels, DVDs
Eating while viewing TV	Limit food intake while watching TV
Concurrent behaviour while viewing	Encourage active TV viewing

- 3 Provide other options. Give children ideas and alternatives to watching TV; for example, playing outside, drawing or reading.
- 4 Use a timer to indicate when it is time to turn off the TV.
- 5 Have activities planned for when TV time is over; for example, taking the dog for a walk.
- 6 Prepare meals at another time of day so that evening meal preparation is minimal. This way, parents can spend more time interacting with their child(ren) in the after-school period.
- 7 Create rules around eating while watching TV; for example, eat snacks at the table before the TV is turned on, no TV during mealtimes, no food on the couch, plan meal times where the TV is turned off and encourage discussion at the dinner table.³³
- 8 Make screen time active time; for example, set challenges for the family, such as who can do the most star jumps or push-ups during commercial breaks.
- 9 Think about where the TVs are located within the home; having a TV in the kitchen can disrupt meal times, and having a TV in a child's bedroom can make supervision more difficult.³³
- 10 Discuss TV advertising with the children; that is, explain what advertisements are and their purpose, watch advertisements with the child(ren) and ask them whether it was successful in making them want the product.³³

Conclusion

It is clear that, in order to minimise the negative effects TV may have on pre-school children's health, more holistic recommendations for pre-schoolers' TV viewing must be developed. It is anticipated that the guidelines suggested earlier (which incorporate every aspect of pre-schoolers' TV viewing behaviour, i.e. duration watched, content, concurrent activities and caloric intake), along with practical recommendations on how these can be achieved by parents, are necessary to reduce the harmful effects of TV on Australian pre-schoolers. Future research should focus on showing evidence of these recommendations.

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