

## **Tots, Toddlers and TV: The potential harm**

While TV watching has been a common activity for several decades, the huge increase in TV and other media targeted at and watched by very young children has been described as “a large uncontrolled experiment on today’s infants and toddlers.”<sup>1</sup>

The value of the baby DVD industry alone has been estimated at between \$200 and \$500M (US).<sup>2,3</sup> Research is yet to fully catch up with the efforts of this industry but a growing number of studies indicate this trend may be more harmful than the marketing campaigns would have us believe.

### **Viewing Habits**

As is usually the case with research, findings differ somewhat, however they indicate that young children are watching TV well before the end of their first year of life. The median age at which children begin watching television is 9 months,<sup>1</sup> with some as young as 3 months.<sup>2</sup> The rise of infant TV viewing began in the late 1990s and has become an increasingly common occurrence. Today, in the US at least, over 90% of children begin watching TV regularly before the age of two.<sup>3</sup>

The issue of a child’s age is an important one, as what may be beneficial, or at least harmless, at one stage of development may be detrimental at another. For example, while *Sesame Street* has shown some benefits for 3-5 year olds, this is not the case for younger children.<sup>3</sup>

The average amount of time spent watching television for children under 3 years ranges from 1 to 3 hours per day. When one considers how much time young children are sleeping this may equate to around 30% of their waking hours. In fact for many young children they are spending more time watching television than any other waking activity.<sup>4</sup>

A large number of children are watching even more, with 30% of American families having a television on all the time, even when it is not being watched.<sup>1</sup> Viewing habits developed in early childhood tend to persist, and predict later viewing habits. Children watching greater amounts of TV before 3 years were more likely to protest about the television being turned off when they reach school age.<sup>1</sup> As this is a battle many parents are keen to avoid, the hours watched tend to increase as the child grows. For example, at 1 year of age children are watching an average of 2.2 hours per day, which increases to an average of 3.6 hours per day by 3 years of age.<sup>5</sup>

Advances in neuroscience have increased our awareness of the remarkable plasticity of a child’s brain during the first few years of life. This has contributed to a greater understanding of the impact a child’s environment has on their development during this time. As the figures above illustrate, TV has a significant presence in the lives of many young children.

### **Baby DVDs**

It is not known how many homes in New Zealand have copies of videos or DVDs from the Baby Einstein Company, now a subsidiary of Disney, but it is unlikely to be too different from the 30% figure estimated in a 2003 study in the US. It is likely that these

were purchased by well-intentioned parents who thought they were doing the right thing and believed that would help their baby to grow up smarter.

Following a complaint to the US Federal Trade Commission by the [Campaign for a Commercial-Free Childhood](#) (CCFC) in 2006 that there was a lack of credible evidence that screen-based media is educational for children under two, Disney did remove some of the educational claims from their Baby Einstein products.

A further concerted effort from CCFC and a class-action suit threatened by a group of public interest lawyers saw Disney offering in the US, in September 2009, among other things, a full refund for every returned copy of a Baby Einstein DVD purchased between June 2004 and September 2009. This has been euphemistically called an upgraded customer satisfaction programme.

Disney has admitted, albeit obliquely and despite the significant financial ramifications, that its Baby Einstein series does not in fact improve educational attainment. Brainwave Trust hopes that parents will think twice and not feel pressured into buying DVDs in order to enhance their child's brain development.

### **Recent Research**

Research emerging over the last few years suggests that (contrary to parental beliefs and marketing claims) rather than enhancing learning, screen time for under-2s may in fact have detrimental effects. These effects have been found in a number of areas of development including interactions between parent and child, play, language development, attentional difficulties and anti-social behaviour. Some of these studies are described below.

### **Effects on Parent-Child Interactions**

A study of 6 and 18-month old infants and their parents found that when a video was on, parents spoke less frequently to their children, and played with their 18-month olds for shorter periods.<sup>2</sup> Given the necessity for infants to have frequent, repeated, positive interactions with their parents to promote healthy development it is concerning, albeit unsurprising, that screen media would interfere with this.

### **Effects on Play**

Television impacts children's play with research finding that the length of time 6-month olds looked at the available toys doubled when the video was turned off.<sup>2</sup> Unfortunately, children do not necessarily need to be focussed on watching television to be affected by it. A 2008 study of the toy play behaviour of 12, 24 and 36 month old children found that background TV (i.e. an adult game show) significantly reduced the length of episodes of toy play, the amount of focussed attention during play, and the overall amount of play, even when children appear to be paying little attention to the TV.<sup>6</sup> Play is vital to child development and the potential cumulative impact for children exposed to many hours of television is of concern. The researchers concluded that the combination of these effects on children's play and the decrease in parent-child interactions made background television "an environmental risk factor in children's development".<sup>6</sup>

### **Effects on Language**

A number of studies have found adverse effects on various aspects of children's early language development.

A study of 15-48 month olds found that those who began watching television before 12 months of age, and who watched more than 2 hours each day, had six times the

likelihood of language delay than children who watched less television and began watching it when they were older. They also found that children who watched television alone were more than eight times as likely to have a language delay compared with children who watched television with a parent or caregiver.<sup>4</sup>

Children need human interaction in order to learn, with a parent who is attuned to their ability level and responsive to their communicative attempts. It is in this context that they will begin to learn the “give and take” of language.<sup>7</sup>

A 2007 study conducted at the University of Washington (the press release from the university which elicited complaints from Disney...) showed that among infants aged 8 to 16 months, each hour per day of viewing baby DVDs/videos was associated with a 17-point decrease in scores on a measure of vocabulary, even when socio-economic status, race, and parent education were controlled for.<sup>8</sup>

A further study found that despite extensive exposure to an infant DVD over a month, 12–18 month olds did not learn anymore words than those who had never seen the DVD.<sup>9</sup> Interestingly, parent perception of how much their child had learned was not related to their child’s actual performance. Rather it seemed that the more a parent liked the DVD, the more they tended to believe that their child had learnt from it. In the absence of any real benefit for their child, one supposes that the marketing claims have been effective in shaping parents’ beliefs about the impact of media on their children.

Each hour of TV watching by two to 48 month old children was associated with significant reductions in scores for child vocalisations, vocalisation duration, and conversational turns. The authors concluded that “audible television is associated with decreased exposure to discernible human adult speech and decreased child vocalizations” which they suggested may explain the association between infant television exposure and delayed language development.<sup>10</sup> So, children get to talk less if they are watching TV and as they may not understand the language spoken, they may listen less as well. Unlike interactions with those around them, it is not pitched at their level of understanding.

### **Effects on Attention**

A study of over 1000 children found early exposure to TV (at 1 and 3 years) was associated with attentional problems at 7 years.<sup>9</sup> They controlled for a number of variables including home environment, maternal depression, cognitive stimulation, and emotional support.

The influence of television exposure was studied on 1314 children at 29 months and 53 months, on later academic, psychosocial, and lifestyle characteristics. Information was obtained from parents, teachers and direct child assessments. Results showed that every extra hour of television at 29 months corresponded to a variety of adverse outcomes by the time these children were around 10 years old. These included decreases in maths achievement, classroom engagement, and time spent in physical activities; and increases in the consumption of soft drinks, snacks, and higher BMIs.<sup>11</sup>

This study concluded that “the long-term risks associated with higher levels of early exposure may chart developmental pathways toward unhealthy dispositions in adolescence”. They argue that “population-level understanding of such risks remains essential for promoting child development”.<sup>11</sup>

### **Enduring Effects**

The effects of hours spent television viewing have been found among school age children also. A New Zealand study of 1037 children found that the hours of viewing between the ages of 5 and 11 years were associated with attentional problems at 13 and 15 years.<sup>12</sup> This also suggests that the effects of early television viewing may be long lasting. Between the ages of 5 and 11 these NZ children were watching on average 2.05 hours television on a weekday. By 13-15 years this had increased to 3.13 hours per weekday. The effects of children's earlier viewing were independent of adolescent TV viewing.

### **TV Violence**

In addition to the young age at which many children begin watching television, and the enormous number of hours they spend doing so, the content of what they watch is also an issue. For example, watching violent programmes at 2-4 years of age significantly increased the risk of antisocial behaviour for boys at 7-9 years.<sup>14</sup> This is particularly important because of links between early childhood aggressive behaviour and later violence in adolescence.

Violent content is frequently found in children's viewing including a high level of violence in animated television shows, as well as advertisements screening during children's TV viewing. An analysis of G-rated animated films released in the US from 1937-1999 found that 100% contained some violence.<sup>7</sup>

### **Theories on TV's Impact**

There are a number of pathways through which TV exposure may impact a child's brain development. Firstly, it may be features of the medium itself, such as music, bright lights and the fast pace of the programme that over-stimulate a young child's brain.<sup>1</sup> TV moves at a much more rapid pace than real life with visual and auditory changes occurring approximately every 6 seconds.<sup>6</sup> These frequent changes prompt the child's orienting reflex, compelling them to watch the screen and making it difficult to look away.<sup>2</sup> For children who have become accustomed to the pace of TV, this can make real life seem less interesting by comparison.

Secondly, the theory of displacement proposes that the (in some cases vast) amount of time spent watching TV results in less time spent on more developmentally enhancing activities, such as interacting with parents, reading, games, and pretend play.<sup>12, 7</sup>

In terms of TV's effect on children's ability to pay attention, it has been suggested that one mechanism may be a learned response, in that, as the television programme continues regardless of the child's attention to it, they may actually be learning that they don't need to pay attention. This can be problematic when generalised to other situations, such as attending to school work.<sup>12</sup>

In all likelihood, it will be a combination of factors that contribute to the impact of screen media on young children. Furthermore, as with other risk factors the detrimental impact is more likely to be seen in the presence of other environmental and genetic risks.<sup>15</sup>

### **Advice from the American Academy of Pediatrics**

The American Academy of Pediatrics recently reaffirmed its stance on screen time for young children on its parenting website ([www.healthychildren.org](http://www.healthychildren.org)). They say that "until more research is done about the effects of screen time on very young children, the American Academy of Pediatrics strongly discourages television viewing for children ages two years old or younger, and encourages interactive play."<sup>3, 13</sup> This recommendation is further endorsed by Brainwave Trust Aotearoa.

Christakis, who has conducted much of the research in this area, concluded that no studies to date have demonstrated benefits associated with infant TV viewing and that the preponderance of existing evidence suggests the potential for harm. He warns that parents should exercise due caution in exposing infants to “excessive” media.<sup>3</sup>

### **The Real Thing**

Brainwave Trustee and neonatal paediatrician Dr. Simon Rowley says that even the best documentary in the world on grass for example, isn't a patch on what a small child will learn by sitting on the back lawn, feeling the unfamiliar texture, smelling the grass, seeing the colour, listening to the sounds, especially if an adult is there to help her feel safe and to reassure and interpret while she explores this extraordinary new thing. Indeed, it is these experiences that are the essential building blocks of healthy brain development, not TV or DVDs.

Babies are wired to get information from *people* – from their faces and expressions and gestures and voices and loving touch... not from TV screens.

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