

## CURRENT TOPIC

## The effects of television on child health: implications and recommendations

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The exposure of American children and adolescents to television continues to exceed the time they spend in the classroom: 15 000 hours versus 12 000 hours by the time they graduate.<sup>1</sup> According to recent Nielsen data, the average child and/or adolescent watches an average of nearly three hours of television per day.<sup>2</sup> These numbers have not decreased significantly over the past 10 years.<sup>3</sup> By the time a child finishes high school, almost three years will have been spent watching television.<sup>1</sup> This figure does not include time spent watching video tapes or playing video games.<sup>4</sup>

Based on surveys of what children watch, the average child annually sees about 12 000 violent acts,<sup>5</sup> 14 000 sexual references and innuendos,<sup>6</sup> and 20 000 advertisements.<sup>7</sup> Children and adolescents are especially vulnerable to the messages communicated through television which influence their perceptions and behaviours.<sup>8</sup> Many younger children cannot discriminate between what they see and what is real. Although there have been studies documenting some prosocial and educational benefits from television viewing,<sup>9 10</sup> significant research has shown that there are negative health effects resulting from television exposure in areas such as: violence and aggressive behaviour; sex and sexuality; nutrition and obesity; and substance use and abuse patterns. To help mitigate these negative health effects, paediatricians need to become familiar with the consequences of television and begin providing anticipatory guidance to their patients and families.<sup>10</sup> In addition, paediatricians need to continue their advocacy efforts on behalf of more child appropriate television.

In this review, we will describe the effects of television on children and adolescents. In addition, we will make recommendations for paediatricians and parents to help address this significant issue.

### Prosocial and educational benefits

Studies from the early 1970s have shown that children imitate prosocial behaviour. These imitated behaviours included altruism, helping, delay of gratification, and high standards of performance when children are exposed to models exhibiting these behaviours. Friedrich and Stein provided evidence that children learned prosocial content of the television programmes and were able to generalise that

learning to a number of real life situations.<sup>9</sup> In addition, they were also able to show that prosocial programmes increased helping behaviour in situations similar to and different from those shown on television.

With the initiation of *Sesame Street*, an American educational television programme for children over the age of 3 years, extensive research was performed.<sup>10</sup> Many studies showed that children who watched the most learned the most. A two year longitudinal study assessing the impact of viewing *Sesame Street* on the vocabulary of 3 and 5 year old children showed that viewing predicted significantly improved vocabulary scores on the Peabody Picture Vocabulary Test. Another study done in the early 1990s showed that children in Turkey who viewed the Turkish version of the programme *Susam Sokagi*, showed substantial pre- to post-test gains in overall knowledge.

### Violence and aggressive behaviour

Young people view over 1000 rapes, murders, armed robberies, and assaults every year sitting in front of the television set.<sup>11</sup> Recently published, the three year, National Television Violence Study examined nearly 10 000 hours of television programming and found that 61% contained violence.<sup>12–14</sup> Children's programming was found to be the most violent. In addition, 26% (of the 61%) involved the use of guns. Portrayals of violence are usually glamorised and perpetrators often go unpunished. Another venue in which a significant amount of violence is portrayed is in rock music videos, which are viewed heavily by adolescents. In a comprehensive content analysis of these music videos, DuRant *et al* showed that 22.4% of all rap videos contained violent acts, and weapon carrying was depicted in 25% of them.<sup>15</sup>

Numerous studies, including longitudinal research,<sup>16 17</sup> have shown a relation between children's exposure to violence and their own violent and aggressive behaviours. Many studies have documented the role of television in fostering violent behaviours among children.<sup>18 19</sup> Two recent meta-analyses investigating the relation between violence viewed on television and aggressive behaviour in children concluded that exposure to portrayals of violence on television was associated consistently with children's aggressive behaviours.<sup>20 21</sup>

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### Sex and sexuality

American television, both programming and advertising, are highly sexualised in their content. Each year, children and adolescents view 14 000 sexual references, innuendoes, and jokes, of which less than 170 will deal with abstinence, birth control, sexually transmitted diseases, or pregnancy.<sup>22</sup> What has been traditionally described as the “family hour” (8–9 pm) now contains more than eight sexual incidents per hour, more than four times as much as in 1976.<sup>23</sup> Nearly one third of family hour shows contain sexual references, and the incidence of vulgar language has increased greatly.<sup>24</sup> In addition, soap operas, a genre highly viewed by adolescents, show extramarital sex eight times more commonly than sex between spouses.<sup>11</sup> At the present time there have only been four studies examining the relation between early onset of sexual intercourse and television viewing. However, there are numerous studies which illustrate television’s powerful influence on teenagers’ sexual attitudes, values, and beliefs.<sup>25 26</sup> Teens rank the media second only to school sex education programmes as a leading source of information about sex.<sup>26</sup>

### Nutrition and obesity

Over the past three decades the prevalence of obesity among children and adolescents has increased and fitness has decreased.<sup>27</sup> Television viewing affects both fatness and fitness and multiple studies point to television viewing as one cause of childhood obesity.<sup>28–31</sup> Two primary mechanisms for this relation have been suggested: reduced energy expenditure from displacement of physical activity and increased dietary energy intake, either during viewing or as a result of food advertising.

The association between television viewing and food consumption can be explained, in part, by the frequent references to food or the consumption of food that occurs during both commercials and programmes.<sup>11</sup> Breakfast cereals, snacks, and fast foods are among the most heavily advertised products on television programmes aimed at children, and tend to have higher energy density than other products such as fruits or vegetables which are less frequently advertised.<sup>30</sup> The amount of time spent viewing television directly correlates with the request, purchase, and consumption of foods advertised on television.<sup>11</sup>

Furthermore, obesity occurs among televised characters far less frequently than in the general population. Because the characters on television eat or talk about food so frequently, the implicit message may be that it is possible to eat frequently and remain thin.<sup>32</sup> Likewise, the almost exclusive presence of very thin, particularly female, television characters may contribute to the notion that the ideal body type is that of the women and adolescents shown; this may contribute to the culture wide obsession with thinness.

### Tobacco and alcohol use and abuse

Increasingly, media messages and images, not necessarily direct advertising, are normalising

and glamorising the use of tobacco, alcohol, and illicit drugs. Tobacco manufacturers spend \$6 billion per year and alcohol manufacturers \$2 billion per year to entice youngsters into consuming their products. Content analysis has found that alcohol, tobacco, or illicit drugs are present in 70% of prime time network dramatic programmes and half of all music videos.<sup>33</sup> The prominence of alcohol in prime time television applies to all characters, including adolescents, where negative characteristics are often applied. However, many adults shown to consume alcohol have positive personality characteristics.<sup>34</sup> Popular movies, frequently shown during the “family hour”, often show the lead or likeable characters using and enjoying tobacco and alcohol products.<sup>35 36</sup> In addition to programming, children and adolescents view approximately 20 000 advertisements each year, of which nearly 2000 are for beer and wine.<sup>37</sup> For every public service announcement, adolescents will view 25–50 beer commercials.

Research indicates that the combined 8 billion dollars which the tobacco and alcohol industries use every year to pitch their product to the American public has a significant impact on adolescents’ beliefs and attitudes about smoking and drinking and may actually influence their consumption as well. Correlational studies have shown a small but positive relation between advertising exposure and consumption.<sup>38–41</sup> Furthermore, advertising exposure appears to influence initial drinking episodes which in turn contribute to excessive drinking and abuse.<sup>39</sup> The evidence, however, to increased consumption, is strongest regarding cigarette advertising and promotions.<sup>42 43</sup> A recent longitudinal study found that an estimated one third of all adolescent smoking could be causally related to tobacco promotional activities.<sup>44</sup>

### Recommendations for parents and paediatricians

As has been shown, there is a significant amount of literature to support the connection between adverse outcomes and exposure to television. There are ways to help attenuate the effects of television “promotion” of harmful activities and substances. They range from controlling the way children and adolescents view television to more effective office counselling and public health activism. The American Academy of Pediatrics, through its policy statements has taken a leadership role in making recommendations for both parents and paediatricians.<sup>5 6 45 46</sup>

#### RECOMMENDATIONS FOR PARENTS

Parents are often not familiar with what their children are viewing on television, nor do they control the television which they watch.<sup>47</sup> In addition, parents generally underestimate the amount of time their children spend viewing television. A recent study found that 32% of 2–7 year olds, 65% of 8–13 year olds, and 65% of 14–18 year olds have television sets in their bedrooms.<sup>3</sup> Furthermore, two 1997 surveys, with a sample size of nearly 1500 parents,

Table 1 Media history form: television focused questions\*

Does your child watch more than 1–2 hours of TV per day?	Frequently	Sometimes	Never
Do you watch TV with your child or know what your child is watching?	Frequently	Sometimes	Never
Do you discuss TV shows with your child?	Frequently	Sometimes	Never
Does your child have a TV in his or her room?	Yes		No
Do you limit your child's watching of TV shows that often contain violence, sex, foul or explicit language, or images of tobacco or alcohol use?	Frequently	Sometimes	Never
Do you have rules about when TV can be watched?	Yes		No
Do you allow your child to eat meals or snacks while watching TV?	Yes		No
Does your child ask you to buy products he or she sees advertised on TV?	Yes		No

\*For more information about the media history form or media education programmes at the American Academy of Pediatrics, please see the web site, [www.aap.org](http://www.aap.org) and click on Media Matters.

found that less than half of them report “always watching” television with their children.<sup>47</sup> Co-viewing is thought to be an effective mechanism for mediating untoward effects of television viewing: an adult, watching a programme with a child and discussing it with him/her, serves simultaneously as a values filter and a media educator.<sup>35</sup> Based on this information, and the data available, the American Academy of Pediatrics<sup>5 45</sup> recommends that parents should:

- Participate in the selection of programmes to be viewed
- Co-view and discuss content with children and adolescents
- Teach critical viewing skills to their children and adolescents
- Limit and focus time spent viewing television to less than one to two hours per day
- Be good media role models for their children and adolescents
- Emphasise alternative activities
- Remove television sets from children's and adolescents' bedrooms
- Avoid using the television as an “electronic babysitter”.

#### RECOMMENDATIONS FOR PAEDIATRICIANS

With the known unhealthy effects of media on children and adolescents, it is crucial that paediatricians are aware and become knowledgeable about the media's influence on their patients.<sup>9</sup> Paediatricians need to be able to educate their patients' parents and advocate for improved, healthier media.<sup>5</sup> As part of health supervision visits, paediatricians also need to begin taking a media history and using the media history form developed by the Academy (table 1).<sup>45 48</sup> This tool enables young people and parents to examine their media habits and allows paediatricians to focus on areas of concern and offer counsel and support.<sup>45</sup> In addition, paediatricians can work with patients to help them understand that what they view on television is not “real” and that the purpose of advertisements is to sell them products. These premises of media education have been implemented in programmes with documented success.<sup>49 50</sup> Review of the available literature has enabled the Academy to make the following recommendations for paediatricians<sup>5 45 47</sup>:

- Become educated about the public health risks of television exposure and share this information with their patients, families, and the community
- Incorporate questions about television use into routine visits including use of the Academy's media history form

- Include anticipatory guidance about television to their patients and their families at health supervision visits
- Encourage parents to avoid television viewing for children under the age of 2 years
- Serve as role models by using television sets and videocassette recorders in their waiting rooms for educational programming only
- Advocate for improved media by writing to local stations, national networks, Hollywood studios, and the Federal Communications Commission
- Promote media education as a means to help mitigate some of the unhealthy effects of television
- Advocate for mandatory media education programmes with known effectiveness in the schools.

#### Conclusions

Although this review primarily focused on the unhealthy effects of television viewing on children and adolescents, some television programming has been shown to promote prosocial behaviours and have positive educational effects in young children. However, these programmes are in the minority and are mainly targeted to very young children (3–5 year olds). There are effective methods which can be used to lessen the negative influences of television. The primary method, besides turning off the television, is the introduction of media education to patients and their families. This introduction can be accomplished through many settings including the paediatrician's office, the school, and the community. The Academy's Media Matters Campaign is an example of such an integrated initiative to disseminate media education. It is important that paediatricians and parents jointly implement prevention campaigns and strategies. The effect on both children and adolescents, and the community will be much greater with a joint effort.

- 1 Strasburger VC. Children, adolescents, and the media: five crucial issues. *Adolesc Med: State of the Art Rev* 1993;4:479–93.
- 2 Nielsen Media Research, New York, 1998.
- 3 Roberts DF, Foehr UG, Rideout VJ, Brodie M. *Kids and media at the new millennium: a comprehensive national analysis of children's media use*. Menlo Park, CA: Kaiser Family Foundation Report, November 1999.
- 4 Mares M-L. Children's use of VCRs. In: Jordan AB, Jamieson KH, eds. Children and television. *Ann Am Acad Pol Soc Sci* 1998;557:120–31.
- 5 American Academy of Pediatrics, Committee on Communications. Children, adolescents and television. *Pediatrics* 1995;96:786–7.

- 6 American Academy of Pediatrics, Committee on Communications. Sexuality, contraception and the media. *Pediatrics* 1995;95:298-300.
- 7 American Academy of Pediatrics, Committee on Communications. Children, adolescents and advertising. *Pediatrics* 1995;95:295-7.
- 8 Gerbner G, Gross L, Morgan M, Signorielli N. Growing up with television: the cultivation perspective. In Bryant J, Zillman D, eds. *Media effects: advances in theory and research*. Hillsdale, NJ: Lawrence Erlbaum, 1994:17-41.
- 9 Friedrich LK, Stein AH. Prosocial television and young children: the effects of verbal labeling and role playing on learning and behavior. *Child Dev* 1975;46:27-38.
- 10 Corporate Research Department. *What research indicates about the educational effects of Sesame Street*. New York, NY: Children's Television Workshop, February 1991.
- 11 Dietz WH, Strasburger VC. Children, adolescents and television. *Curr Probl Pediatr* 1991;21:8-31.
- 12 Federman J. *National Television Violence Study I*. Thousand Oaks, CA: Sage; 1996.
- 13 Federman J. *National Television Violence Study II*. Thousand Oaks, CA: Sage; 1997.
- 14 Federman J. *National Television Violence Study III*. Thousand Oaks, CA: Sage; 1998.
- 15 DuRant RH, Rich M, Emans SJ, Rome ES, Allred E, Woods ER. Violence and weapon carrying in music videos: a content analysis. *Arch Pediatr Adolesc Med* 1997;151:443-8.
- 16 Dodge KA, Bates JF, Pettit CS. Mechanisms in the cycle of violence. *Science* 1990;250:1678-83.
- 17 Windom CS. Does violence beget violence: a critical examination of the literature. *Psychol Bull* 1989;106:3-28.
- 18 Singer MI, Miller DB, Guo S, Flannery DJ, Frierson T, Slovak K. Contributors to violent behavior among elementary and middle school children. *Pediatrics* 1999;104:878-84.
- 19 Hough KJ, Erwin PG. Children's attitudes toward violence on television. *J Psychol* 1997;131:411-15.
- 20 Paik H, Comstock G. The effects of television violence on antisocial behavior: a meta-analysis. *Commun Res* 1994;21:516-46.
- 21 Wood W, Wong FY, Chachere JG. Effects of media violence on viewers' aggression in unconstrained social interaction. *Psychol Bull* 1999;109:371-83.
- 22 Harris L and Associates. *Sexual material on American Network Television during the 1987-88 season*. New York, NY: Planned Parenthood Federation of America, 1988.
- 23 Kunkel D, Cope KM, Colvin C. *Sexual messages on family hour television: content and context*. Menlo Park, CA: Kaiser Family Foundation, 1996.
- 24 Parents Television Council. *The family hour: no place for your kids*. Los Angeles, CA: Parents Television Council, 8 May 1997.
- 25 Strasburger VC. "Sex, drugs, rock'n'roll," and the media: are the media responsible for adolescent behavior? *Adolesc Med: State of the Art Rev* 1997;8:403-14.
- 26 Kaiser Family Foundation. *The 1996 Kaiser Family Foundation Survey on Teens and Sex*. Menlo Park, CA: Kaiser Family Foundation, 24 June 24 1996.
- 27 Troiano RP, Fiegel KM. Overweight children and adolescents: description, epidemiology and demographics. *Pediatrics* 1998;101:497-504.
- 28 The Annenberg Public Policy Center at the University of Pennsylvania. *Television in the home: the 1997 survey of parents and children*. Philadelphia: University of Pennsylvania, 1997.
- 29 Dietz WH, Gortmaker SL. Do we fatten our children at the TV set? Television viewing and obesity in children and adolescents. *Pediatrics* 1985;75:807-12.
- 30 Gortmaker SL, Must A, Sobol AM, Peterson K, Colditz GA, Dietz WH. Television viewing as a cause of increasing obesity among children in the United States 1986-1990. *Arch Pediatr Adolesc Med* 1996;150:356-62.
- 31 Robinson TN. Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA* 1999;282:1561-7.
- 32 Hammond KM, Wylie A, Casswell S. The extent and nature of televised food advertising to New Zealand children and adolescents. *Aust N Z J Public Health* 1999;23:49-55.
- 33 Gerbner G, Ozyegin N. *Alcohol, tobacco, and illicit drugs in entertainment television, commercials, news, "reality shows", movies and music channels*. Report from the Robert Wood Johnson Foundation, Princeton, NJ, 20 March 1997.
- 34 Mathios A, Avery R, Bisogni C, Shanahan J. Alcohol portrayal on prime-time television: manifest and latent messages. *J Stud Alcohol* 1998;59:305-10.
- 35 Strasburger VC. *Adolescents and the media, medical and psychological impact*. Thousand Oaks, CA: Sage, 1995.
- 36 Goldstein AO, Sobel RA, Newman GR. Tobacco and alcohol use in G-rated children's animated films. *JAMA* 1999;281:1131-6.
- 37 Strasburger VC. Adolescents, drugs, and the media. *Adolesc Med: State of the Art Rev* 1993;4:391-416.
- 38 Atkin CK. Effects of media alcohol messages on adolescent audiences. *Adolesc Med: State of the Art Rev* 1993;4:527-42.
- 39 Grube J, Wallack L. Television beer advertising and drinking knowledge, beliefs and intentions among school aged children. *Am J Public Health* 1994;84:254-9.
- 40 Wylie A, Zhang JF, Casswell S. Responses to televised alcohol advertisements associated with drinking behaviour of 10-17 year olds. *Addiction* 1998;93:361-71.
- 41 Robinson TN, Chen HL, Killen JD. Television and music video exposure and risk of adolescent alcohol use. *Pediatrics* 1998;102:E54.
- 42 Centers for Disease Control. *Preventing tobacco use among young people*. A report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, 1994.
- 43 Institute of Medicine. *Growing up tobacco free: preventing nicotine addiction in children and youths*. Washington, DC: National Academy Press, 1994.
- 44 Pierce JP, Choi WS, Gilpin EA, Farkas AJ, Berry CC. Tobacco industry promotion of cigarettes and adolescent smoking. *JAMA* 1998;279:511-15.
- 45 American Academy of Pediatrics, Committee on Public Education. Media education. *Pediatrics* 1999;104:341-3.
- 46 American Academy of Pediatrics, Committee on Communications. Media violence. *Pediatrics* 1995;95:949-51.
- 47 Strasburger VC, Donnerstein E. Children, adolescents and the media: issues and solutions. *Pediatrics* 1999;103:129-39.
- 48 Anastasaea-Vlachou K, Fryrsira-Kanioura H, Papathanasiou-Klontza D, Xipolita-Zachariadi A, Matsaniotis N. The effects of television viewing in Greece, and the role of the paediatrician: a familiar triangle revisited. *Eur J Pediatr* 1996;155:1057-50.
- 49 Singer DG, Singer JL. Developing critical viewing skills and media literacy in children. In: Jordan AB, Jamieson KH, eds. *Children and television*. *Ann Am Acad Pol Soc Sci* 1998;557:164-79.
- 50 Austin EW, Johnson KK. Effects of general and alcohol-specific media literacy training on children's decision making about alcohol. *J Health Commun* 1997;2:17-42.