Unsafe and Violent Behavior in Commercials Aired During Televised Major Sporting Events

Robert F. Tamburro, MD*; Patricia L. Gordon, MD‡; James P. D’Apolito, MD§; and Scott C. Howard, MD‡

ABSTRACT. Objective. Injuries are the leading cause of death in children, and media exposure seems to increase children’s risk-taking behavior. Televised sports are commonly viewed by children. The objective of this study was to determine the proportion of commercials that depict violence or other unsafe behavior during major televised sporting events that are aired before 9:00 PM.

Methods. We obtained a list of the 50 sports programs that were most highly rated by Nielsen Media Research and that were televised between September 1, 2001, and September 1, 2002. These 50 programs included Winter Olympics events (n = 15), National Football League (NFL) regular season games (n = 14), NFL playoff games (n = 10), Major League Baseball World Series and playoff games (n = 7), the NFL Super Bowl (n = 1), the National Basketball Association Western Conference Final Game (n = 1), the College Football Rose Bowl (n = 1), and the National Collegiate Athletic Association Basketball Championship game (n = 1). Two other events were reviewed as well: the final round of the Masters Golf Championship, because it was the only sporting event rated in the top 50 of the previous year that was not represented by a similar sporting event in the study year, and the Daytona 500 National Association for Stock Car Auto Racing race, because it was the only event rated among the top 75 of the study year that was not represented by a similar event (ie, there were no other golfing or auto racing events reviewed). These events were included because different sporting events may attract different viewers and different advertisements; thus, their inclusion provides a more comprehensive evaluation of the topic. For sporting events with >3 programs in the top 50 (NFL regular season games, NFL playoff games, Winter Olympic events, and Major League Baseball World Series), representative samples of events were assessed. Surrogate events were analyzed for programs that were aired after 9:00 PM (Eastern Time) to control for the reduced likelihood of viewing by children after 9:00 PM. For example, afternoon telecasts of the National Collegiate Athletic Association Regional Final and National Semifinal games were assessed in place of the Championship game, which started after 9:00 PM. Weekend afternoon telecasts of the Winter Olympics (3 successive weekends) were assessed as surrogates for all Olympics telecasts. For the World Series, the Super Bowl, and the National Basketball Association Conference Championship games, which began before 9:00 PM but ended after that time, we evaluated only commercials that aired before 9:00 PM. All commercials that were aired during these programs were reviewed at standard speed for unsafe behavior or violence. Commercials that were aired during pregame, postgame, or halftime periods were not assessed. Commercials were categorized according to the product being advertised. Unsafe behavior was simply defined as any action that could have harmful consequences or that contravened the injury prevention recommendations of national organizations. Violence was defined as any intentional physical contact by an aggressor that had the potential to inflict injury or harm or the legitimate threat of such action. All commercials were reviewed by at least 2 investigators; when the 2 could not agree on the findings, a third investigator was used to resolve differences. The percentage of commercials and of commercial breaks that portrayed violent or unsafe behavior was determined for each category of event and advertised product. A commercial break was defined as a series of commercials shown during a single break from the sporting event. χ² analysis was used for all analyses, and relative risks with 95% confidence intervals were determined. The proportion of commercials that depicted unsafe behavior and/or violence during each sporting event was compared with the proportion of such commercials that were observed during the Masters Golf Tournament (which had the lowest proportion of commercials depicting such behavior). The proportion of commercials that contained violent/unsafe behavior for each advertised product was compared with the proportion of such commercials that advertised food or nonalcoholic beverages. Food and nonalcoholic beverage commercials were selected as the reference because they are a well-defined, common category of commercial.

Results. Of the 1185 commercials assessed, 14% (n = 165) displayed unsafe behavior and 6% (n = 66) depicted violence. Of the 322 commercial breaks, 158 (49%) contained at least 1 commercial showing unsafe behavior or violence. Sixty-three commercials required review by a third investigator to adjudicate violence or unsafe behavior; 20 of 52 were ultimately judged to portray unsafe behavior, and 4 of 11 were ultimately judged to portray violence. Sporting events differed in the proportion of commercials that showed violence or unsafe behavior. The Super Bowl had the highest proportion of such commercials, and the Masters Golf Tournament had the least (relative risk: 4.3; 95% confidence interval: 1.4–12.5). The Masters Golf Tournament was noteworthy for the complete absence of violent commercials. Only 18% of re-
viewed commercials advertised movies or television programs, yet these commercials accounted for 86% of all violent commercials. Forty-eight percent of commercials that contained violence were for movies, and an additional 38% were for television programs. Nearly two thirds of all commercials for movies contained violence, whereas 15% of all commercials for television programs contained violence, a rate that increased to 22% when commercials for other sporting events were excluded. Several categories of commercials portrayed unsafe behaviors; commercials for automobiles accounted for the most. In 8 different categories, 10% or more of the commercials depicted unsafe behavior, and 7 were significantly more likely to depict such behavior than a food or beverage commercial.

**Conclusions.** Children who watch televised sports events view a significant amount of violent and unsafe behavior. In accordance with American Academy of Pediatrics recommendations for television viewing, parents should both limit and directly supervise children’s viewing of these events. Our findings suggest that parents should remain present during commercials or should consider implementing commercial-skipping technology. In addition, efforts should be made to regulate the content of commercials that promote television programs and movies based on the hour at which the sporting event is aired. Moreover, the sports, movie, and television industries should be encouraged to adopt models of advertising that limit or eliminate such content. These efforts could help to ensure that the viewing of televised sporting events is a safe and positive experience for children.


**ABBREVIATIONS.** NFL, National Football League; CI, confidence interval; RR, relative risk.

The influence of the media on the behavior of children has been studied and debated extensively. More than 25 years ago, Daven et al described the “Evel Knievel syndrome” after 3 children were severely injured while attempting to imitate Knievel’s motorcycle stunts. Since then, >1000 reports have concluded that media exposure increases the risk of aggressive behavior in children.2 Villani3 reviewed 10 years of literature and concluded that media exposure increases risk-taking behavior. A randomized, controlled trial demonstrated that children who were randomized to view high-risk television programs increased their self-reported risk-taking significantly more than those who viewed low-risk or no television programs.4 Despite these findings, movies, video recordings, and television programming directed toward children continue to depict violence and unsafe behavior.5–9

Children often view televised sporting events. The Amateur Athletic Foundation of Los Angeles reported that 86% of children watch televised sports, 67% at least twice weekly and 16% daily,10 a rate confirmed by the Kaiser Family Foundation.11 However, the content of advertisements that are aired during televised sporting events has not been studied extensively. Madden and Grube12 reported a decade ago that alcohol and tobacco advertising during televised sports portrayed images counter to the Surgeon General’s recommendations. More recently, Anderson13,14 observed violent interactions in 10 or more commercials during each game of the World Series.

We assessed the prevalence of violent or other unsafe behavior in commercials that were shown during the highest-rated televised sporting events. We hypothesized that a large proportion of these commercials contain such content.

**METHODS**

We obtained a list of the 50 sports programs that were most highly rated by Nielsen Media Research and that were televised between September 1, 2001, and September 1, 2002.15 These 50 programs included Winter Olympics events (n = 15), National Football League (NFL) regular season games (n = 14), NFL playoff games (n = 10), Major League Baseball World Series and playoff games (n = 7), the NFL Super Bowl (n = 1), the National Basketball Association Western Conference Final Game (n = 1), the College Football Rose Bowl (n = 1), and the National Collegiate Athletic Association Basketball Championship game (n = 1). Two other events were reviewed as well: the final round of the Masters Golf Championship, because it was the only event rated in the top 50 of the previous year not represented by a similar sporting event in the study year, and the Daytona 500 National Association for Stock Car Auto Racing race, because it was the only event rated among the top 75 of the study year not represented by a similar event (ie, there were no other golfing or auto racing events reviewed). These events were included because different sporting events may attract different viewers and different advertisements; thus, their inclusion provides a more comprehensive evaluation of the topic. The 2003 Super Bowl was assessed in place of the 2002 Super Bowl because of problems in recording the latter. For events with >3 programs in the top 50 (NFL regular season games, NFL playoff games, Winter Olympic events, and Major League Baseball World Series), representative events, rather than all events, were assessed.

Surrogate events were analyzed for programs that were aired after 9:00 pm (Eastern Time) to control for the reduced likelihood of viewing by children after 9:00 pm. For example, afternoon telecasts of the National Collegiate Athletic Association Regional Final and National Semifinal games were assessed in place of the Championship game, which started after 9:00 pm. Weekend afternoon telecasts of the Winter Olympics (3 successive weekends) were assessed as surrogates for all Olympics telecasts. For the World Series, the Super Bowl, and the National Basketball Association Conference Championship games, which began before 9:00 pm but ended after that time, we evaluated only commercials that aired before 9:00 pm.

All commercials that aired during these programs were reviewed at standard speed for unsafe behavior or violence. Commercials that aired during a game, postgame events, and commercials that were not assessed. Commercials were categorized according to the product being advertised. Unsafe behavior was simply defined5,6 as any action that could have harmful consequences or that contravened the injury prevention recommendations of national organizations (eg, failing to use an automobile seatbelt, riding a bicycle without a helmet, crossing a street without looking, crossing a street at a place other than a crosswalk). Violence was defined as any intentional physical contact by an aggressor that had the potential to inflict injury or harm6 or the legitimate threat of such action (eg, aiming a gun at another person’s head without firing, a verbal threat of murder with a weapon in hand).

Two of the investigators (R.F.T. and P.L.G.) reviewed all commercials and independently formulated an opinion of the content. When their findings did not concur, they attempted to resolve their differences by discussing their viewpoints. When they were not able to reach a consensus, a third reviewer (J.P.D.) was used to resolve differences. The percentage of commercials and of commercial breaks that showed unsafe behavior or violence was calculated for each category of event and for the product advertised. A commercial break was defined as a series of commercials shown during a single break from the sporting event.

χ² analysis was used for all analyses, and relative risks (RRs) with 95% confidence intervals (CIs) were determined. The proportion of commercials that depicted unsafe behavior and/or vio-
ience during each category of sporting event was compared with the proportion of such commercials that were observed during the Masters Golf Tournament (which had the lowest proportion of commercials depicting such behavior). The proportion of commercials that contained violent/unsafe behavior for the advertised product was compared with the proportion of such commercials that advertised food or nonalcoholic beverages. Food and nonalcoholic beverage commercials were selected as the reference because they are a well-defined, common category of commercial. All statistical analyses were performed using the SAS 8.1 statistical software program (SAS Institute Inc, Cary, NC).

RESULTS

Of 1185 commercials reviewed, 14% (n = 165) depicted unsafe behavior and 6% (n = 66) depicted violence. Of the 322 commercial breaks, 158 (49%) contained at least 1 commercial that showed unsafe behavior or violence. Sixty-three commercials required review by a third investigator to adjudicate violence or unsafe behavior; 20 of 52 were ultimately judged to portray unsafe behavior, and 4 of 11 were ultimately judged to portray violence. The proportion of commercials that contained unsafe behavior or violence varied by sporting event (Table 1). The Super Bowl had the highest proportion of such commercials, and the Masters Golf Tournament had the least (RR: 4.3; 95% CI: 1.4–12.5). The Masters Golf Tournament was noteworthy for the complete absence of violent commercials, and only 1 commercial (aired 3 times) showed unsafe behavior; it depicted, from a distance, a child riding a bicycle without wearing a helmet. Furthermore, the total commercial time during this event was limited, and no commercials advertised alcoholic beverages.

Of all commercials depicting violence, 48% were advertisements for movies. Nearly two thirds of all commercials for movies contained violence (Table 2). Commercials for movies were 25 times more likely to contain violence than commercials for food or nonalcoholic beverages (Table 2). Commercials for television programs accounted for an additional 38% of commercials that contained violence. Fifteen percent of all commercials for television programs contained violence, a rate that increased to 22% when commercials for other sporting events were excluded (Table 2). Several categories of commercials portrayed unsafe behaviors; commercials for automobiles accounted for the most. In 8 different categories, 10% or more of the commercials depicted unsafe behavior and 7 were significantly more likely to depict such behavior than a food or beverage commercial (Table 2).

DISCUSSION

Despite efforts to minimize children’s exposure to violence and high-risk behavior by using rating systems for movies, videotapes, television programs, and video games, concern persists. Pelletier et al5 found that recommended safe behaviors were infrequently shown in the 25 top-rated G- or PG-rated movies during the years 1995 through 1997, and the consequences of unsafe behavior were rarely shown. Winston et al6 reviewed 216 television programs for children; they found that 47% portrayed at least 1 unsafe, imitable behavior without consequence and that one third depicted ≥3 such behaviors. In addition, G-rated animated films have been found not only to portray violence frequently but also to depict alcohol and tobacco use as normative behavior, with no warning about the long-term consequences.7–9

Television commercials may be even more problematic. American children view an estimated 360,000 commercials before graduating from high school.16 There is no rating or preview system to warn parents about the content of commercials during televised programs. Moreover, children may be more vulnerable than adults to the fast-paced, “attention grabbing” design of commercials. More than a decade ago, Fischer et al17 demonstrated that the Camel cigarette logo was as familiar as Mickey Mouse to 6-year-olds. More recently, the Budweiser frogs and their slogan were more readily recognized and quoted by children 9 to 11 years of age than Tony the Tiger, Smokey the Bear, or the Mighty Morphin Power Rangers; only Bugs Bunny was more familiar.18

TABLE 1. Percentage of Commercials That Showed Unsafe or Violent Behavior by Category of Sporting Event

<table>
<thead>
<tr>
<th>Event</th>
<th>N*</th>
<th>Unsafe†</th>
<th>Violent†</th>
<th>Either†</th>
<th>RR (95% CI)§</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Bowl</td>
<td>40</td>
<td>33% (13)</td>
<td>28% (11)</td>
<td>48% (19)</td>
<td>4.3 (1.4–12.5)</td>
</tr>
<tr>
<td>College bowl games</td>
<td>230</td>
<td>17% (39)</td>
<td>5% (11)</td>
<td>20% (46)</td>
<td>2.2 (0.7–7.0)</td>
</tr>
<tr>
<td>NFL playoffs</td>
<td>176</td>
<td>15% (26)</td>
<td>6% (11)</td>
<td>19% (33)</td>
<td>2.0 (0.7–6.3)</td>
</tr>
<tr>
<td>NFL regular season</td>
<td>182</td>
<td>12% (21)</td>
<td>7% (12)</td>
<td>18% (33)</td>
<td>2.0 (0.6–6.1)</td>
</tr>
<tr>
<td>Pro basketball playoffs</td>
<td>44</td>
<td>14% (6)</td>
<td>9% (4)</td>
<td>18% (8)</td>
<td>1.6 (0.6–4.5)</td>
</tr>
<tr>
<td>Winter Olympics</td>
<td>159</td>
<td>15% (24)</td>
<td>1% (2)</td>
<td>16% (25)</td>
<td>1.7 (0.5–5.1)</td>
</tr>
<tr>
<td>Daytona 500</td>
<td>101</td>
<td>13% (13)</td>
<td>3% (3)</td>
<td>16% (16)</td>
<td>1.6 (0.5–4.8)</td>
</tr>
<tr>
<td>World Series</td>
<td>70</td>
<td>10% (7)</td>
<td>7% (5)</td>
<td>14% (10)</td>
<td>1.4 (0.5–4.0)</td>
</tr>
<tr>
<td>College basketball</td>
<td>151</td>
<td>9% (13)</td>
<td>5% (7)</td>
<td>11% (17)</td>
<td>1.2 (0.4, 3.5)</td>
</tr>
<tr>
<td>Masters golf</td>
<td>32</td>
<td>9% (3)</td>
<td>0% (0)</td>
<td>9% (3)</td>
<td>1.0 (Reference)</td>
</tr>
<tr>
<td>Total</td>
<td>1185</td>
<td>14% (165)</td>
<td>6% (66)</td>
<td>18% (210)</td>
<td>—</td>
</tr>
</tbody>
</table>

* The total number of commercials reviewed for that category of event.
† The number in parentheses is the absolute number of commercials in that category depicting unsafe behavior, violence, or either.
‡ The number in parentheses refers to the absolute number of commercials that depicted either unsafe behavior or violence. The number is less than the sum of the unsafe and violent commercials for several events because 21 commercials contained both unsafe and violent content.
§ Compares the RR of viewing a commercial that contained either unsafe or violent behavior with the Masters Golf Tournament.
|| P < .05.
Children commonly view televised sporting events.10,11 We found that nearly 1 of every 5 commercials during televised major sporting events depicted unsafe or violent behavior. Although the association between sports programming and violent commercials has previously been described,13,14 we found that other unsafe behaviors are depicted even more frequently. As reported,13,14 the majority (86%) of commercials with violent content were promotions for movies or television programs. This finding is striking by both its magnitude and its specificity. For all other categories, <5% of commercials contained violence, whereas 65% of commercials for movies and 22% of commercials for nonsports television programs contained such content. Moreover, this project expanded on the previous findings by assessing all highly rated televised sports programs (not simply baseball) and by limiting analysis only to sports programs that were aired before 9:00 PM Eastern Time, suggesting that these findings are relevant to the periods of time when children are most likely to be viewing television.

Our findings suggest that children’s exposure to televised sports should be limited and supervised directly by parents, as recommended by the American Academy of Pediatrics for television viewing in general.19 Encouraging is that the Amateur Athletic Foundation of Los Angeles found that most children reported watching sports with their parent(s).10 Our findings suggest that parents should remain present during commercials or should consider implementing commercial-skipping technology. In addition, efforts should be made to regulate the content of commercials that promote television programs and movies on the basis of the hour at which the sporting event is aired. This single measure could significantly reduce the violent content to which children are exposed during televised sporting events.

Both the Federal Trade Commission and the Federal Communications Commission have acted to protect children from potentially harmful television advertising. The Federal Trade Commission has issued 5 reports since September 2000 addressing the marketing of violent entertainment to children. In their initial report, the Federal Trade Commission noted that the Motion Picture Association of America functions as a self-regulatory system using an Advertising Administration to “ensure the accurate dissemination of the rating symbol in all advertising for a film” and to “ensure that the content of a film’s advertising, regardless of the rating, is appropriate for even the youngest audience.”20 The Federal Trade Commission’s review found that the Advertising Administration generally achieves the first of these goals but is less successful at achieving the latter. In subsequent reports, the Federal Trade Commission noted significant progress by the industry in its commitment not to target children in films rated R for violence, including an industry-set policy of not advertising R-rated films in venues with a 35% or more youth audience share.21–24 However, even while complying with these policies, the Federal Trade Commission noted that movie studios frequently place advertisements for R-rated films in venues with a 35% or more youth audience share.21–24 The Federal Communications Commission has limited the amount of commercial time during children’s programming to <10.5 minutes per hour on weekends and <12 minutes on weekdays.25 Unfortunately, these actions do not seem to apply to the commercials that are aired during televised sporting events.

We acknowledge potential limitations in the design of this study, most notably, reviewer bias. Clearly, the reviewers’ awareness of unsafe or violent behavior was heightened, and although objective criteria were used to define such content, there were commercials that did not lend themselves well to application of these criteria. This was particularly true for commercials that potentially contained unsafe behavior evidenced by the fact that 52 of these required a third reviewer. However, the majority of these were ultimately judged to not contain unsafe content.

## TABLE 2. Percentage of Commercials That Showed Unsafe or Violent Behavior, by Category of Advertised Product

<table>
<thead>
<tr>
<th>Product</th>
<th>N*</th>
<th>Unsafe† (%)</th>
<th>RR (95% CI)‡</th>
<th>Violent† (%)</th>
<th>RR (95% CI)‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movie</td>
<td>49</td>
<td>33% (16)</td>
<td>5.6 (2.6–11.8)§</td>
<td>65% (32)</td>
<td>25.0 (9.3–67.1)§</td>
</tr>
<tr>
<td>Sport/game</td>
<td>26</td>
<td>27% (7)</td>
<td>4.6 (1.9–11.2)§</td>
<td>4% (1)</td>
<td>1.5 (0.2–12.6)</td>
</tr>
<tr>
<td>Auto accessories</td>
<td>41</td>
<td>27% (11)</td>
<td>4.6 (2.0–10.3)§</td>
<td>0% (0)</td>
<td>0.4 (0.02–7.4)</td>
</tr>
<tr>
<td>Automobile</td>
<td>191</td>
<td>21% (40)</td>
<td>3.6 (1.8–7.1)§</td>
<td>0% (0)</td>
<td>0.1 (0.01–1.6)</td>
</tr>
<tr>
<td>Health/hygiene</td>
<td>55</td>
<td>20% (11)</td>
<td>3.4 (1.5–7.8)§</td>
<td>0% (0)</td>
<td>0.3 (0.02–5.6)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>77</td>
<td>18% (14)</td>
<td>3.1 (1.4–6.8)§</td>
<td>4% (3)</td>
<td>1.5 (0.3–6.5)</td>
</tr>
<tr>
<td>Finance</td>
<td>122</td>
<td>16% (19)</td>
<td>2.6 (1.2–5.6)§</td>
<td>1% (1)</td>
<td>0.3 (0.04–2.8)</td>
</tr>
<tr>
<td>Retail (stores)</td>
<td>52</td>
<td>10% (5)</td>
<td>1.6 (0.6–4.7)</td>
<td>0% (0)</td>
<td>0.3 (0.02–5.9)</td>
</tr>
<tr>
<td>Television programs</td>
<td>168</td>
<td>9% (15)</td>
<td>1.5 (0.7–3.4)</td>
<td>15% (25)</td>
<td>5.7 (2.0–16.0§</td>
</tr>
<tr>
<td>Phone</td>
<td>48</td>
<td>8% (4)</td>
<td>1.4 (0.5–4.4)</td>
<td>0% (0)</td>
<td>0.3 (0.02–6.4)</td>
</tr>
<tr>
<td>Computer</td>
<td>120</td>
<td>8% (10)</td>
<td>1.4 (0.6–3.4)</td>
<td>0% (0)</td>
<td>0.1 (0.01–2.6)</td>
</tr>
<tr>
<td>Food/beverage</td>
<td>153</td>
<td>6% (9)</td>
<td>0.8 (0.3–2.6)</td>
<td>0% (0)</td>
<td>0.2 (0.01–3.7)</td>
</tr>
</tbody>
</table>

* Total number of commercials reviewed within that category of product. † The number in parentheses is the absolute number of commercials in that category depicting unsafe or violent behavior, respectively. ‡ Compares the RR of viewing a commercial that contained either unsafe or violent behavior for that category of product with commercials for food and nonalcoholic beverage.

§ P < .05. ⊥ Includes all categories of commercials with <25 commercials in the study.
behavior. Moreover, the objective criteria did seem to work well for violence; <1% of commercials required a third reviewer to adjudicate violence.

Another concern is that the samples chosen to represent the categories with >3 events as well as the surrogates may not have been representative. This seems unlikely because similar commercials are shown during events within the same category. Also, because the surrogates were primarily afternoon programs, they may have actually underestimated the number of commercials with undesirable content. We must also acknowledge that there was no attempt to assess the proportion of commercials that conveyed appropriate safety precautions or other positive messages. Of note, safety belt use was depicted in most scenes that showed automobile occupants. However, there was also no attempt to identify commercials with other undesirable content, such as the portrayal of alcohol use in a favorable light, sexual innuendo, or frightening content.26

Television sports are commonly viewed by children; thus, more work in this field seems warranted. For instance, the exposure of children to commercials that contain positive messages during these events should be assessed. In addition, the sports, movie, and television industries should be encouraged to adopt models for commercial sponsorship of major sporting events with minimal unsafe or violent content. Such efforts, in conjunction with consistent parental supervision and some regulation of commercials for television programs and movies on the basis of the time of day, could ensure that the viewing of televised sporting events is a safe and positive experience for children.

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REFERENCES

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