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Patterns of Energy Drink Advertising over U.S. Television Networks

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Abstract

Objective—To describe programming themes and the inclusion of adolescents in the base audience for television channels with high levels of energy drink ad airtime.

Design—Secondary analysis of energy drink ad airtime over U.S. network and cable television channels (n=139) March 2012-February 2013. Programming themes and the inclusion of adolescents in each channel's base audience were extracted from cable television trade reports.

Main Outcome Measure—Energy drink ad airtime.

Analysis—Channels were ranked by airtime; programming themes and the inclusion of adolescents in the base audience were summarized for the 10 channels with the most airtime.

Results—Over the study year, 36,501 minutes (608 hours) were devoted to energy drink ads; the top 10 channels accounted 46.5% of such airtime. Programming themes for the top 10 channels were music (n=3), sports (n=3), action-adventure lifestyle (n=2), African-American lifestyle (n=1) and comedy (n=1). MTV2 ranked first in airtime devoted to energy drink ads. Six of the 10 channels with the most airtime included adolescents aged 12-17 years in their base audience.

Conclusions and Implications—Energy drink manufacturers primarily advertise on channels that likely appeal to adolescents. Nutritionists may wish to consider energy drink media literacy when advising adolescents about energy drink consumption.

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Keywords

energy drinks; adolescents; marketing; television

Introduction

Energy drinks are ready-to-drink beverages, shots and drops that contain caffeine and often a mix of other stimulants and ingredients purported to increase energy (e.g., guarana, herbal supplements, B-vitamins, taurine).¹⁻³ The caffeine content of energy drinks varies. Concentrations for many popular brands range from 70 mg per one 8-ounce serving to 200 mg per one 16-ounce serving.⁴ In comparison, the caffeine content of many popular soft drink brands ranges from 23-69 mg per 12 ounces.⁴ Caffeine is considered “generally recognized as safe” by the U.S. Food and Drug Administration,⁵ yet concerns have been raised about the potential health risks associated with high caffeine intake among adolescents.³ For example, short-term adverse effects associated with caffeine intake among adolescents include anxiety, irritability and withdrawal symptoms.^{3,6,7} Adolescence is a critical time of cognitive development, and caffeine intake during this period may have a negative impact on learning, particularly if intake contributes to disrupted sleep.^{3,7} More serious adverse effects related to energy drink intake among adolescents, including serious cardiovascular events,^{3,8,9} have also been reported. Importantly, 34 deaths related to energy drink use have been reported to the Food and Drug Administration since 2004.¹⁰ While the extent of any health risks associated with energy drink consumption is currently under debate,¹¹ the American Academy of Pediatrics³ advises against energy drink consumption among adolescents, stating that energy drinks do not offer any therapeutic benefits.³

In June 2013, the American Medical Association¹² supported a ban on the marketing of energy drinks to adolescents, and in September 2013, a U.S. Senate Commerce Committee demanded energy drink manufacturers stop marketing their products to adolescents.¹³ However, data to date regarding the marketing practices of energy drink manufacturers have been largely qualitative.^{1,14} Specifically, qualitative data highlight several methods of advertising that energy drink manufacturers use including featuring young athletes in marketing campaigns, using edgy and attention-grabbing packaging and sponsoring events popular with adolescents and young adults.^{1,14} Two quantitative studies have measured adolescent exposure to energy drink ads and have reported that adolescents are more likely to be exposed to energy drink ads over television and the Internet than adults.^{15,16} Using 2012 Nielsen data, researchers from the Yale Rudd Center for Food Policy and Obesity illustrated that adolescents aged 12-17 years old viewed more ads for energy drinks than adults did on many cable channels popular with young adults. Adolescents viewed 2.26 times as many ads for 5-Hour Energy, 2.14 times as many ads for Red Bull and 2.44 times as many ads for Street King energy drinks on MTV2 than adults viewed on MTV2.¹⁵ Results from that study demonstrated that ads aired on those channels effectively reached an adolescent audience. Nielsen data are based on a sample of households and reflect viewership; a study to specifically assess patterns of airtime placement for energy drink ads on TV would be useful by informing a more complete representation of the marketing intents of manufacturers.

Television remains the most popular media outlet among adolescents in the U.S.¹⁷ In 2009, adolescents aged 11-18 years averaged over 4 ½ hours of TV time on any typical day.¹⁷ In 2012, TV advertising accounted for 96% of all U.S. advertising expenditures for 6 major energy drink manufacturers.¹⁵ Thus, TV advertising as a medium to reach youth remains highly relevant. This study quantified the airtime devoted to energy drink ads over all U.S. network and cable TV stations for 1 year. For the 10 channels with greatest amount of airtime devoted to energy drink ads, programming themes and the frequency of adolescents in the base audience were summarized to gauge how likely it was that adolescents were exposed to energy drink ads on TV.

Methods

Television Advertisements for Energy Drinks

A database of television ads was purchased from an advertising monitoring company (AdScope, Kantar Media, Atlanta, GA) in March 2013. That database included all food and beverage ads aired on U.S. network and cable television channels (n=139) between March 2012 and February 2013. For each advertisement in the database, the following data were included: manufacturer, product name, title of advertisement, length of advertisement, channel of advertisement airing, as well as the date and time of airing. Manufacturer and product names were reviewed to identify energy drinks. Caffeinated sodas and non-caffeinated sports drinks were not included. Energy drinks were defined as ready-to-drink beverages, shots (concentrated liquids, roughly 1.9 fluid ounces, intended for rapid consumption), powder mixes, or drops (concentrated liquids, roughly 1.0 or 1.6 fluid ounces, intended to be added to other beverages) containing caffeine and at least 1 additional ingredient promoted as increasing energy. Manufacturers' websites were visited to review product ingredients.¹⁸⁻³⁰ This study was exempt from Institutional Board Review as human subjects were not enrolled.

Audience Demographics

Audience demographics for the top 10 channels were extracted from publically available reports compiled by the Cabletelevision Advertising Bureau (CAB).³¹ The CAB is a 501-(c)-(6) trade group including advertisement supported cable and television networks; its board of directors includes senior leadership of most major television and cable networks. The mission of the CAB is to “increase awareness of the power of cable as an advertising medium and to make cable an increasingly effective marketing environment for advertisers throughout the U.S.”³¹ Thus, the CAB lobbies manufacturers and advertising firms with the intent of increasing advertising revenue for cable television networks. CAB reports for each channel included specific age ranges for the base audience sourced from marketing research firms (Nielsen or MRI Doublebase); channels were considered as including adolescents in their primary target audience if the base audience included 12-17 year olds. Data reported in each CAB report varied across channels; however, reports for several channels also included the proportion of adolescents aged 12-17 years old in the base audience. Such information is often reported as an index value, which is the proportion of adolescent viewers in that channel's base audience relative to the proportion of adolescent viewers in the general network and cable TV audience. An index value of 200 implies that a channel has twice as

many 12-17 year old viewers in their base audience as compared to the general TV viewing audience. Adolescents currently constitute 8% of the general TV viewing audience,³¹ thus, an index value of 200 for a specific channel would indicate that adolescents constitute 16% of that channel's base audience. Index values for adolescents are reported when those values were available.

Data Analysis

The total number of advertisements and total number of advertising minutes (airtime) devoted to energy drinks were summed for each network and cable television channel. Channels were then ranked by airtime devoted to energy drink ads and the 10 channels with the greatest total airtime over the study year were selected for further analyses. For each of those top 10 channels, the average of the daily total airtime (minutes) during the period was computed and 95% confidence intervals were computed to illustrate statistically significant differences in daily airtime by channel at the $P < 0.05$ level, unadjusted for multiple comparisons. When comparisons between specific channels were presented, the p-value for a t-test comparing mean minutes of airtime per day was also presented. Minutes per day were summarized overall and by air block for the top 10 channels; air blocks were selected to reflect common viewing classifications such as prime time and late night. All summaries and analyses were completed with the R Language and Environment for Statistical Computing, version 3.0.1.

Results

Table 1 lists all of the energy drinks advertised on TV during the study year. Thirteen manufacturers accounted for 83,071 ads for energy drinks over the 139 network and cable channels, totaling 36,501 minutes of airtime (>608 hours). One manufacturer, 5-Hour Energy, accounted for 63.2% of total airtime devoted to energy drink ads. All products contained caffeine and at least 1 of the following ingredients: B-vitamins, guarana, taurine or herbal supplements including ginseng; most varieties also contained sugar.

Table 2 presents the 10 channels that devoted the most airtime to energy drink ads. Three of the top 10 channels were primarily music-related (MTV2, MTV, Fuse), 3 were sports-related (ESPN News, ESPN-2, Speed), 2 were specific to a male lifestyle (G4, Spike) and 2 had other programming themes (Comedy Central, BET). Those 10 channels accounted for 46.5% of all airtime devoted to energy drink ads over the study year. MTV2 devoted the most airtime to energy drink ads at 2,959 minutes over the study year (8.1% of total airtime). Among the top 10 channels, MTV2 had the greatest proportion of adolescents in their base audience at 31.8% as reported from the CAB reports. Further, 6 of the top 10 channels included adolescents as young as 12 years old in their primary target audience as reported from the CAB reports. Specific index values for adolescents (12-17 year olds) were available from CAB reports for 4 of the top 10 channels: MTV2 (index value: 398), Fuse (250), MTV (281), BET (127). Those available index values were greater than 100, reflecting a greater proportion of adolescents for each of those channels as compared to the general TV viewing audience. Specifically, the proportion of 12-17 year olds in MTV2's base audience was 398% greater than the portion of 12-17 year olds in the general TV

viewing audience of the US. Index values were not available for the remaining 6 channels in the top 10 (ESPN News, Comedy Central, ESPN2, Spike, Speed and G4).

Figure 1 presents the average daily airtime devoted to energy drink ads for each of the top 10 channels, overall and by specific brand. MTV2 devoted an average of 8.1 (95% CI: 7.7-8.5) minutes/day to energy drink ads, significantly more airtime than ESPN News which ranked second (mean 6.3, 95% CI: 6.0-6.7 minutes/day; $p < 0.001$). When considering specific brands, the most airtime was devoted to 5-Hour Energy. Airtime for 5-Hour Energy was greatest on ESPN News (mean 4.8, 95% CI: 4.6-5.0 minutes/day) and MTV2 (mean 4.7, 95% CI: 4.6-4.9 minutes/day), followed by Comedy Central (mean 4.0, 95% CI: 3.9-4.2 minutes/day). Red Bull energy drinks were the second most highly advertised energy drinks. Airtime for Red Bull was the greatest on MTV2 (mean 2.4, 95% CI: 2.1-2.7 minutes/day), followed by ESPN-2 (1.3; 95% CI: 1.1-1.5) and MTV (1.2; 95% CI: 1.0-1.4). Among the top 10 channels, MTV2 accounted for 33.9% of all airtime devoted to Red Bull energy drink ads.

When considering the patterns of advertising over the course of the day, airtime devoted to energy drink ads was statistically greatest on MTV2 between 11 AM – 2 AM compared to all other channels (data not shown). Further, among the remaining 9 channels, there were no consistent differences between channels for patterns of airtime over the course of the day (data not shown). Therefore, the trends in airtime over the course of the day were computed as averages by programming theme (music, sports, lifestyle and other) with MTV2 plotted separately. Figure 2 presents minutes per day devoted to energy drink ads (all brands combined) by air block. From 11 AM onward, MTV2 devoted the most airtime to energy drink ads over the course of the day compared to the other channels. Airtime for energy drink ads on MTV2 peaked between 8 PM and 11 PM. In contrast to MTV2, the airtime devoted to energy drink ads on the remaining 9 channels peaked between 2 AM – 5 AM.

Discussion

This study is one of the first quantitative studies to document the promotional practices of energy drink manufacturers on U.S. TV. Results from this study suggest that during 2012, energy drink manufacturers advertised primarily on channels that included adolescents in their base audience: 6 of the 10 channels with the most airtime devoted to energy drink ads in 2012 included 12-17 year olds in their primary target audience. Further, the bulk of airtime devoted to energy drink ads on MTV2 occurred between 8-11 PM, a time when adolescents constitute 30.9% of MTV2's viewing audience.³¹ In this current study, 7 of the top 10 channels for airtime devoted to energy drink ads had programming themes related to music, sports, or extreme sports; results that are consistent with previous qualitative studies suggesting that energy drink manufacturers target a young, primarily male demographic by associating their products with themes related to music, sports and risk-taking.^{1,14} Taken together, findings demonstrate that energy drink manufacturers advertised primarily on TV channels that are likely popular with adolescents.

Excess caffeine intake may cause short-term negative health effects among adolescents such as nervousness, confusion and heart palpitations.^{3,7} Energy drinks also often include added

sugars, which can contribute to dental carries and also excess caloric intake possibly leading to weight gain.³² Importantly, there is the potential for serious adverse health effects related to energy drink use including convulsions, myocardial infarctions and even death.⁸ Energy drinks do not offer any therapeutic benefit to adolescents,³ and it is advised that adolescents avoid consuming energy drinks.³ In addition to the health risks associated with excessive caffeine intake, energy drink use among adolescents is also concerning because of the increased risk for substance use and abuse. Energy drink use often clusters with other unhealthy behaviors among adolescents, including smoking,³³ alcohol use³⁴ and illicit drug use.³⁴ Cross-sectional studies are limited in establishing causality. However, it is possible that caffeine may prime an adolescent's brain to be more receptive to other stimulants including nicotine⁷ and consuming energy drinks with alcohol has been shown to increase the likelihood of alcohol abuse among adolescents.³⁵ Health professionals infrequently advise adolescents about the potential health risks associated with energy drinks³⁶ and nutrition educators and practitioners can help adolescents and their families understand the potential dangers of energy drink consumption.

The U.S. market for energy drinks is rapidly expanding. Total spending for energy drink advertising increased 71% from 2010 to 2012,¹⁵ and industry estimates report that U.S. sales of energy drinks will increase from \$12.5 billion in 2012 to more than \$21.5 billion by 2017.³⁷ Thus, it is critical to understand the potential influence that energy drink marketing may have on the behaviors of adolescents. There is consistent evidence to support that increased exposure to alcohol marketing relates to alcohol initiation and increased use among adolescents;³⁸ it is possible that a similar association exists for energy drinks. Data on the prevalence of energy drink use among adolescents are sparse^{33-36,39} Results from 5 separate large surveys in the U.S. report that approximately 9-30% of adolescents are frequent energy drink consumers measured as consuming at least 1 energy drink in any given week^{33,35,36,39} or on any given day.³⁴ Data are also lacking on how frequently adolescents consume more than one energy drink in a day. Undergraduate college students often consume more than 1 energy drink on days when treating insufficient sleep, low energy or when studying.⁴⁰ Thus, as more adolescents are likely to be exposed to energy drink marketing in the future, studies are needed to understand how energy drink marketing may influence the intentions and consumption behaviors of adolescents related to energy drink use.

In June 2013, the American Medical Association adapted a policy supporting a ban on the marketing of energy drinks to children and adolescents under the age of 18 years,¹² yet no federal or state level bans exist. Energy drink manufacturers have been encouraged to adapt a set of self-regulatory practices to reduce adolescents' exposure to their marketing.² As part of the 2013 U.S. Senate Commerce Committee hearing related to the marketing of energy drinks to adolescents,¹⁴ it was recommended that manufacturers limit any marketing on media where 35.0% or more of the audience is under the age of 18. However, that criteria would not cover any of the channels identified in this current report, including MTV2 where 12-17 year olds constituted 30.8% of that channel's base audience³¹ Importantly, self-regulatory measures to limit food and beverage advertising to youth on TV can be insufficient.⁴¹ While policies related to energy drink marketing are debated, nutrition educators may wish to include elements of media literacy when advising adolescents and

their families about the risks of energy drink consumption. For example, greater levels of smoking media literacy among adolescents relate to a decreased likelihood of current smoking as well as a future propensity to smoke.⁴² Parents can also take immediate steps to help reduce their child's exposure to energy drink marketing by limiting TV exposure: measures of increased TV exposure among adolescents (TV viewing time, number of TVs in the home and the presence of a TV in the bedroom) have been associated with heavier consumption of sugar-sweetened beverages such as soft drinks, sports drinks and energy drinks.⁴³

Strengths of this study include the use of a complete database of all televised advertisements for 1 year, allowing for a quantification of the total airtime of energy drinks ads by brand over all network and cable television channels by time of day. Additionally, ads were reviewed to confirm that products being advertised were energy drinks. This study is limited in that it cannot be concluded that adolescents specifically viewed the energy drink advertisements placed on the top 10 channels reported in this study, and data on viewership demographics over viewing day were not available. However, findings are supported by 2012 Nielsen data,¹⁵ which illustrated that adolescents view more energy drink ads than adults do on several of the same 10 channels identified in this current study, including MTV2. Additionally, this study relied on publically available data and complete data on the proportion of adolescents in the primary target audience all of the top 10 channels was not available. The approach of this study highlights the intentions of manufactures regarding the placement of their advertisements and whether these companies deliberately targeted adolescents is not known. It can only be said that the audiences of TV channels used to air ads for energy drinks frequently include adolescents as young as 12 years old. Finally, this study is limited to advertising on TV. While energy drink manufacturers devoted the majority of their 2012 marketing expenditures to TV,¹⁵ there is considerable heterogeneity in the marketing practices of energy drink manufacturers. For example, marketing via social media¹⁵ and guerilla marketing⁴⁴ are becoming increasingly more prevalent.

Implications for Research and Practice

Results from this study provide quantitative data to support that energy drink manufacturers advertise heavily on network and cable TV channels that include adolescents in their primary audience. While results do not support that manufacturers intentionally target adolescents with their advertising, results do support that manufacturers advertise primarily on TV channels with programming themes likely to appeal to adolescents, and that adolescents are likely exposed to energy drink advertising via TV. Adolescents are advised to avoid energy drinks, and energy drink consumption among adolescents may relate to serious negative health effects. Studies are needed to understand how energy drink marketing may influence the intentions and consumption behaviors of adolescents related to energy drink use. Considering that the energy drink market is rapidly expanding, nutrition educators and practitioners need to be aware of the potential dangers of energy drink consumption and should be encouraged to advise adolescents about the potential health risks associated with energy drinks. Such professional are also in a position to help adolescents and their families understand the influence that energy drink marketing may have on energy

drink consumption among adolescents, and may wish to include aspects of media literacy into programs to reduce energy drink consumption among adolescents.

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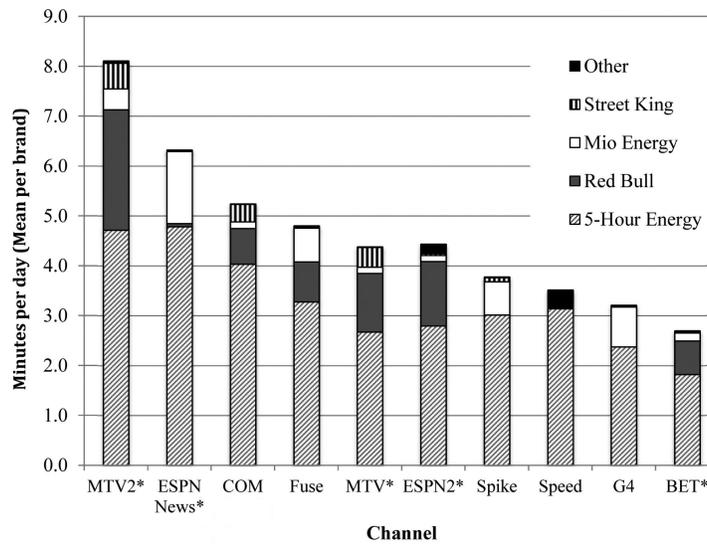
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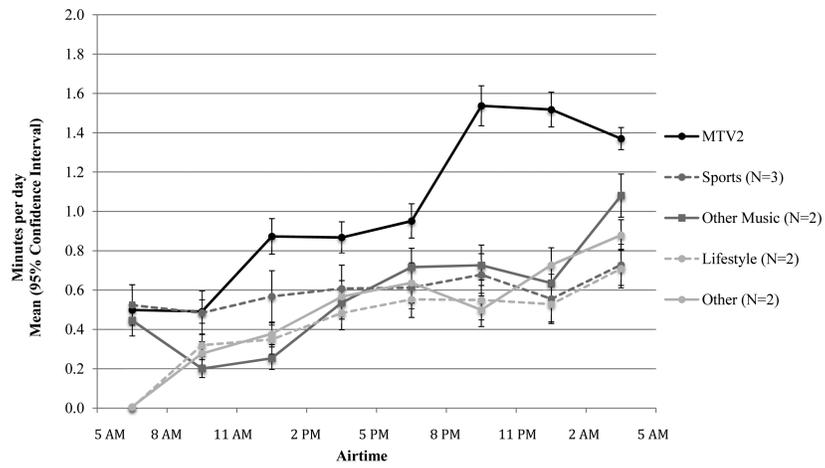
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MTV: Music Television; COM: Comedy Central; BET: Black Entertainment Television.
 *Denotes channels that include adolescents (12-17 years old) in the primary target audience.
¹ Calculated from ads placed on network and cable television stations March 1, 2012 – February 28, 2013.
² Top ten channels defined as the ten channels with the greatest amount of airtime devoted to energy drink ads.
³ Other includes Monster Energy, Mountain Dew Kick Start, and Full Throttle. V-8 V-Fusion Energy, Zipfizz, Hydrive were not advertised on the top ten channels.
⁴ Airtime on MTV2 (8.1 min/day, 95% confidence interval 7.7-8.5) was significantly greater than that on ESPN News (6.3 min/day; 95% confidence interval 6.0-6.7; p<0.001).

Figure 1. Daily airtime devoted to energy drink advertisements over the study year by brand, for 10 top 10 channels.



MTV: Music Television.
¹ Calculated from ads placed on network and cable television stations March 1, 2012 – February 28, 2013.
² Top ten channels defined as the ten channels with the greatest amount of airtime devoted to energy drink ads.
³ Channels with a sports theme includes ESPN News, ESPN 2, and Speed; other music theme includes MTV and Fuse; lifestyle theme includes G4 and Spike; other theme includes Comedy Central and BET (Black Entertainment Television).

Figure 2.
 Daily airtime devoted to energy drink advertisements over the study year by airtime, for top 10 channels.

Table 1Energy drink brands advertised on U.S. network and cable television channels (n=139) during study year.¹

Brand name	Manufacturer	Product type(s)	Airtime over study year	% Total airtime ²
Overall		--	36,501 min	100%
<u>By brand:</u>				
5-Hour Energy	Innovation Ventures	Shot	25,650 min	63.2%
Mio Energy Water Enhancer	Kraft Foods	Drops	3,216 min	13.8%
Red Bull	Red Bull GmbH	Beverage	4,665 min	10.8%
V8 V-Fusion Energy	Campbell's Soup Company	Beverage	1,408 min	6.8%
Street King	Street King LLC	Shot	1,009 min	4.1%
NOS	The Coca-Cola Company	Beverage	159 min	0.4%
Mountain Dew Kick Start	PepsiCo	Beverage	145 min	0.4%
Monster Energy	Monster Beverage Company	Beverage	123 min	0.3%
Zipfizz	Zipfizz Corporation	Shot, powder	37 min	<0.1%
Full Throttle	The Coca-Cola Company	Beverage	25 min	<0.1%
Rockstar	Rockstar	Beverage	29 min	<0.1%
FRS Healthy Energy	FRS	Beverage, shot, powder	12 min	<0.1%
Hydrive	Hydrive Energy LLC	Beverage	9 min	<0.1%

LLC: Limited liability company.

¹ Calculated from ads placed on network and cable television stations March 1, 2012 – February 28, 2013.

² Percent of total airtime devoted to energy drink ads over 139 U.S. network and cable television channels.

Table 2

Distribution of energy drink advertisements on television during study year for the top ten channels.^{1,2}

Rank	Channel	Programming Content Themes ³	Base demographics includes 12-17 year olds? ³	Energy Drink Ads per year		
				Ads (N)	Airtime per channel (min)	Airtime overall (min)
1	MTV 2	Music, lifestyle	Yes	6,501	2,959	8.1%
2	ESPN News	Sports	Yes	5,425	2,307	6.3%
3	COM	Comedy	No	4,137	1,914	5.2%
4	FUSE	Music	Yes	4,043	1,754	4.8%
5	MTV	Music, lifestyle	Yes	3,537	1,600	4.4%
6	ESPN-2	Sports	Yes	3,322	1,619	4.4%
7	Spike	Risk, adventure, competition	No	3,175	1,379	3.8%
8	Speed	Automotive/motorcycle racing, performance, lifestyle	No	2,557	1,284	3.5%
9	G4	Male-focused general entertainment	No	2,793	1,172	3.2%
10	BET	African-American culture	Yes	2,065	985	2.7%
Total over top ten channels:				37,553	16,973	46.5%
Total over all channels:				83,071	36,501	100%

MTV: Music Television; COM: Comedy Central; BET: Black Entertainment Television.

¹Calculated from ads placed on network and cable television stations March 1, 2012 – February 28, 2013.

²Top ten channels defined as the ten channels with the greatest amount of airtime devoted to energy drink ads.

³Description of programming content and base audience statistics extracted from reports compiled by the Cabletelevision Advertising Bureau, a 501-(c)-(6) trade group supporting cable television networks.