

# Unhealthy sport sponsorship at the 2017 AFL Grand Final: a case study of its frequency, duration and nature

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**S**ponsorship of elite sport provides a compelling avenue for unhealthy food and sugary drink, alcohol and gambling companies to promote their products. It is a unique and especially persuasive form of marketing<sup>1</sup> and it allows them to advertise to a mass audience, including children and young adults. Branded sponsorship within an elite sport context assumes many forms such as: electronic and fixed signage within the stadium; logos painted on the field; branded uniforms; naming rights to a series, game or stadium; product endorsement by players; pop-up advertisements or verbal commentary during play; and commercial break advertisements.<sup>2-4</sup> By embedding marketing within the game, sport sponsorship can cut through advertising clutter, generating immense brand exposure.<sup>5</sup> Compared to traditional forms of advertising (e.g. television, radio, print), marketing via sport sponsorship is perceived as a less overt attempt to persuade, is more accepted by consumers and has been shown to meet with less cognitive resistance.<sup>1,6</sup> Sponsorship harnesses spectators' emotional engagement to facilitate transfer of positive and often inextricable associations with popular and valued sports, teams or players to a brand or product.<sup>1,7</sup> It can create a 'health halo', whereby the image of sport as a healthy activity is transferred to sponsor brands,<sup>5,8</sup> and enhance perception of a company's social responsibility or goodwill in supporting a valued community event, particularly when it is believed the event is reliant on the sponsorship.<sup>9,10</sup>

From a public health perspective, elite sport sponsorship by unhealthy products

## Abstract

**Objective:** To assess the frequency, duration and nature of unhealthy marketing during the highest-rating sporting event in Australia in 2017.

**Methods:** A content analysis of the 2017 Australian Football League (AFL) Grand Final television broadcast identified episodes of unhealthy food and sugary drink, alcohol and gambling marketing (and pro-health marketing as a comparison).

**Results:** There were 559 unhealthy marketing episodes (47 minutes 17 seconds). Most (81%) were for unhealthy food and sugary drink products, while alcohol (9%) and gambling (10%) were less frequent. The total duration of unhealthy marketing was delivered primarily via fixed advertising (55%), dynamic advertising (32%) and branded objects (11%). For unhealthy food and sugary drinks, at least one episode was visible 25% of the time. For each of alcohol and gambling, at least one episode was visible 4% of the time. Unhealthy food and sugary drink marketing peaked in Quarter 2. Pro-health marketing was limited, with 26 episodes (2 minutes 59 seconds).

**Conclusions:** The 2017 AFL Grand Final broadcast featured a high frequency and extensive duration of unhealthy marketing, especially for unhealthy food and sugary drink brands.

**Implications for public health:** Findings strengthen evidence supporting calls to increase regulation of sport sponsorship by unhealthy brands.

**Key words:** sport sponsorship, content analysis, food, alcohol, gambling

is concerning due to the promotion and normalisation of behaviours associated with adverse health and social outcomes, particularly for vulnerable groups. Advertising of unhealthy food and sugary drinks has been shown to positively influence diet-related attitudes and preferences, intentions and behaviours among children and adolescents.<sup>11-15</sup> Likewise, exposure to alcohol advertising is associated with positive alcohol expectancies, attitudes and intentions, which are strong predictors of alcohol use,<sup>16-18</sup> and has been shown to expedite initiation of drinking and increase consumption levels in children and adolescents.<sup>19-25</sup> While the impact of elite sport sponsorship has been

less directly studied, there is evidence that sponsorship effectively reaches children and increases awareness of unhealthy commodities<sup>26</sup>; can influence children's perceptions of unhealthy food brands and sway family food purchases<sup>27</sup>; increases alcohol consumption in children<sup>28</sup>; stimulates harmful levels of drinking alcohol among sportspeople<sup>29,30</sup>; and can increase awareness, attitudes and preferences for sponsor products among young adults.<sup>8</sup> Emerging evidence also suggests that gambling sponsorship may be particularly harmful to problem gamblers or those recovering from being problem gamblers,<sup>31,32</sup> young males,<sup>32,33</sup> adolescents<sup>34</sup> and children.<sup>35</sup>

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Restricting the advertising of unhealthy food and sugary drink, alcohol and gambling products, including via sport sponsorship, has consequently been identified as a necessary strategy to reduce harm related to these products.<sup>36-40</sup>

Research examining the extent and nature of tobacco advertising via sport sponsorship was crucial in building the evidence that led to Federal Legislation (*Tobacco Advertising Prohibition Act 1992*) banning tobacco sponsorship in Australia.<sup>41,42</sup> In the past decade, a small number of studies employing content analysis have identified high volumes of sponsorship by unhealthy food and sugary drink, alcohol and gambling brands in popular, high-profile sporting codes/events in Australia<sup>2-4,43,44</sup> and New Zealand.<sup>45,46</sup> The present study aimed to contribute to existing studies by quantifying the frequency, duration and nature of unhealthy food and sugary drink, alcohol, and gambling marketing during the highest rating sport event in Australia in 2017 – the Australian Football League (AFL) Grand Final.<sup>47</sup> Marketing delivering pro-health messages was also examined to provide a point of comparison.

## Method

A content analysis of a digital recording of the 2017 AFL Grand Final television broadcast, including commercials as shown in the Melbourne metropolitan region (televised free-to-air on Channel 7, 30 September 2017), was undertaken to identify marketing

episodes for three types of unhealthy products: unhealthy food and sugary drinks, alcohol and gambling. Food and non-alcoholic drink brands were classified as unhealthy if the majority of products sold and promoted under that brand were deemed discretionary food and drink choices in the Australian Dietary Guidelines;<sup>48</sup> that is, food and drink products not required for a healthy diet and typically energy-dense and nutrient-poor (e.g. containing high amounts of saturated fat, sodium/salt, or added sugar).<sup>48</sup> Episodes of pro-health marketing (such as moderation messages) were also identified to examine the extent to which in-game advertising may address the potential negative health consequences of consuming unhealthy food, beverage and gambling products.

The 2017 AFL Grand Final broadcast was chosen for study because it was the highest rating sporting event in Australia in 2017, watched by more than 2.7 million viewers, including 322,000 children under the age of 15 years, across major cities in Australia.<sup>47,49</sup> The coding framework was developed following previous content analysis studies of marketing during sporting events.<sup>2,4,43,50</sup> A marketing episode was coded if the brand name, logo, slogan or readily identifiable imagery or messaging (e.g. McDonald's Monopoly campaign, Four'n Twenty's pie image) was clearly visible for at least one second. The length of time each episode was visible was recorded to the nearest second using the timestamp on the video file. For each episode, the brand, type of product

(e.g. unhealthy food and sugary drink) and sub-type (e.g. fast food, soft drink, sports drink), and type of promotion were coded. The types of promotions coded comprised the following five categories, with examples of these shown in Figure 1:

1. Dynamic advertising: Advertising on revolving or electronic banners or signs within the stadium, including the scoreboard.
2. Fixed advertising: Advertising on static banners or signage within the stadium.
3. Integrated advertising: Advertising via on-screen pop-ups and pull-through banners or broadcast announcements.
4. Commercial break advertising: Advertisements during commercial breaks.
5. Branded objects: Logos or other identifiable branding on objects used by players, umpires and other staff on field.

Marketing episodes that occurred simultaneously were coded as separate episodes if they were for a different brand or type of promotion. For example, if a Coca-Cola electronic banner was visible at the same time as Coca-Cola fixed signage, each was coded separately, or if Coca-Cola fixed signage was visible at the same time as McDonald's fixed advertising, each was coded separately.

The total duration of coded footage was 2 hours 6 minutes 37 seconds. All in-game time was coded, which included the time from the first bounce of each quarter to the start of the between-quarter commercial break for Quarters 1 to 3, and to the final siren for Quarter 4 (Quarter 1: 30 minutes 28 seconds; Quarter 2: 34 minutes 26 seconds; Quarter 3: 30 minutes 24 seconds; Quarter 4: 31 minutes 19 seconds). Commercial breaks *within each quarter* (i.e. following goals) were coded, while commercial breaks *between quarters*, including at half-time, were not coded. Pre- and post-match footage was not coded.

The broadcast was independently coded by two of the researchers, using screens of identical size, via playback using VLC Media Player Version 3.0.2.<sup>51</sup> Inter-rater reliability was calculated based on 10 minutes of coding using Krippendorff's alpha, which is suitable for both nominal and ratio data.<sup>52</sup> Inter-rater reliability was acceptable ( $\alpha>0.8$ ) for coding of episodes ( $\alpha=0.83$ ) and their duration ( $\alpha=0.94$ ). Any discrepancies in coding were reviewed by the researchers together until consensus was reached.

**Figure 1: Examples of types of promotions coded (clockwise from top left): fixed advertising (McDonald's goal posts, Coca-Cola signage within stadium); dynamic advertising (Four'n Twenty electronic banner); integrated advertising (McDonald's on-screen pop-up); branded objects (Gatorade padded blocks); commercial break advertising (McDonald's advertisement).**



## Data analysis

The data were analysed using Microsoft Excel and Stata MP 14.2.<sup>53</sup> Descriptive statistics were used to analyse the frequency and duration of marketing episodes by type of product, brand and promotion type, where each episode was counted separately. For each unhealthy product type and for unhealthy marketing overall, the total proportion of coded game time when marketing was present was calculated where episodes that occurred simultaneously were not counted separately. That is, the proportion of coded time when *at least one* marketing episode was visible was calculated. For each unhealthy product type and unhealthy marketing overall, logistic regression with post hoc pairwise comparisons using Bonferroni correction were conducted to examine if the proportion of coded time when at least one episode was visible differed by game quarter.

## Results

### Frequency and duration of unhealthy marketing overall

Overall, there were 559 episodes of unhealthy marketing during the coded time, totalling 47 minutes 17 seconds duration when each episode was counted separately (Table 1).

This corresponds to viewers being exposed to, on average, 4.4 unhealthy marketing episodes per minute. The duration of individual unhealthy marketing episodes ranged in length, from 1 to 39 seconds (median = 3 seconds). More than half (55%) of the total duration of unhealthy marketing was delivered via fixed advertising, almost one-third (32%) via dynamic advertising, and 11% via branded objects (e.g. drink bottles).

### Frequency and duration of unhealthy food and sugary drink marketing

The majority (81%, n=452) of unhealthy marketing episodes were for fast food, soft drink and sport drink brands (Table 1). Viewers were exposed to an average of 3.6 episodes of unhealthy food and sugary drink marketing per minute. Promotions for McDonald's made up around half (51%) of the total duration of unhealthy food and sugary drink marketing, amounting to 18 minutes 33 seconds. Coca-Cola accounted for 29% of the duration of unhealthy food and sugary drink marketing, totalling 10 minutes 21 seconds; Gatorade made up 17% (6 minutes 8 seconds); and Four'n Twenty made up 3% (1 minute 15 seconds).

As shown in Table 1, two-thirds (67%) of the total duration of unhealthy food and sugary drink marketing was achieved via fixed

advertising. This was predominantly due to McDonald's branding on the goal posts (15 minutes 47 seconds), but also included Coca-Cola signage within the stadium (7 minutes 26 seconds), Gatorade signage surrounding the players' bench (53 seconds) and Four'n Twenty signage within the stadium (11 seconds). Dynamic advertising accounted for 17% of the total duration of unhealthy food and sugary drink marketing and included electronic banners for Coca-Cola (2 minutes 55 seconds), McDonald's (2 minutes 8 seconds), and Four'n Twenty (1 minute 4 seconds). Branded objects, which included Gatorade-branded drink bottles, portable coolers, towels, mats and padded blocks positioned on the field's perimeter, made up 14% of the unhealthy food and sugary drink marketing duration. Commercial breaks (30 seconds) and integrated advertising (8 seconds), both for McDonald's, each contributed 1% or less of the total unhealthy food and sugary drink duration. See Figure 1 for examples of in-game promotions for unhealthy food and sugary drink brands.

### Frequency and duration of alcohol marketing

Promotions for beer, cider, wine and an alcohol retailer accounted for 9% (n=50) of unhealthy marketing episodes (Table 1).

**Table 1: Frequency and duration (minutes, seconds) of unhealthy and pro-health marketing episodes, by product type and promotion type.**

		Fixed advertising	Dynamic advertising	Branded objects	Commercial break	Integrated advertising	Total
<b>Unhealthy marketing</b>							
Unhealthy food and sugary drinks	Episodes (%)	282 (62%)	69 (15%)	98 (22%)	2 (<1%)	1 (<1%)	452
	Duration (%)	24m 17s (67%)	6m 7s (17%)	5m 15s (14%)	30s (1%)	8s (<1%)	36m 17s
Gambling	Episodes (%)	13 (23%)	44 (77%)	–	–	–	57
	Duration (%)	38s (11%)	4m 56s (89%)	–	–	–	5m 34s
Alcohol	Episodes (%)	13 (26%)	36 (72%)	–	1 (2%)	–	50
	Duration (%)	52s (16%)	4m 4s (75%)	–	30s (9%)	–	5m 26s
<i>Total unhealthy marketing</i>	Episodes (%)	308 (55%)	149 (27%)	98 (18%)	3 (1%)	1 (<1%)	559
	Duration (%)	25m 47s (55%)	15m 7s (32%)	5m 15s (11%)	1m (2%)	8s (<1%)	47m 17s
<b>Pro-health marketing</b>							
Healthy eating	Episodes (%)	–	–	–	–	–	–
	Duration (%)	–	–	–	–	–	–
Responsible gambling	Episodes (%)	–	–	–	–	–	–
	Duration (%)	–	–	–	–	–	–
Alcohol harm prevention:							
Publicly-funded	Episodes (%)	–	25 (100%)	–	–	–	25
	Duration (%)	–	2m 53s (100%)	–	–	–	2m 53s
Industry-funded	Episodes (%)	–	1 (100%)	–	–	–	1
	Duration (%)	–	6s (100%)	–	–	–	6s
<i>Total pro-health marketing</i>	Episodes (%)	–	26 (100%)	–	–	–	26
	Duration (%)	–	2m 59s (100%)	–	–	–	2m 59s

*Notes:*

Where multiple marketing episodes occurred simultaneously each episode was coded as a single episode provided it was a different brand and/or type of promotion (i.e., dynamic, fixed, integrated, commercial, branded objects). Duration was calculated counting each episode separately. Percentages reported to nearest whole number so may not sum to 100.

On average, viewers were exposed to one episode of alcohol marketing every 2 minutes 32 seconds. The total duration of alcohol marketing was made up of promotions for Carlton Draught (71%; 3 minutes 51 seconds), IGA Liquor (21%; 1 minute 7 seconds), Mercury Cider (6%; 20 seconds) and Wolf Blass (2%; 8 seconds). The total duration of alcohol marketing occurred primarily via dynamic advertising (75%), which included electronic banners for Carlton Draught (2 minutes 37 seconds), IGA Liquor (1 minute 7 seconds), and Mercury Cider (20 seconds). Fixed advertising accounted for 16% of the total alcohol marketing duration, including signage for Carlton Draught (44 seconds) and Wolf Blass (8 seconds), while a commercial break for Carlton Draught (30 seconds) contributed 9%.

### Frequency and duration of gambling marketing

As shown in Table 1, one-in-ten (10%, n=57) unhealthy marketing episodes were for gambling brands. On average, viewers were exposed to a gambling episode every 2 minutes 13 seconds. The total duration of gambling marketing was made up of promotions for Ladbrokes (58%; 3 minutes 17 seconds), bet365 (38%; 2 minutes 8 seconds), CrownBet (1%; 5 seconds) and SportsBet (1%; 4 seconds). The majority (89%) of gambling marketing duration was achieved via electronic banners promoting Ladbrokes (2 minutes 48 seconds) and bet365 (2 minutes 8 seconds), while 11% was achieved through fixed signs for Ladbrokes (29 seconds), CrownBet (5 seconds), and SportsBet (4 seconds).

### Proportion of coded footage when unhealthy marketing was visible

Table 2 presents the proportion of coded time when *at least one* episode of each type of unhealthy marketing was visible. Overall, at least one episode of unhealthy marketing (unhealthy food and sugary drinks, alcohol, or gambling) was visible almost one-third (30%) of the coded time. There was a significant association between game quarter and the proportion of time at least one unhealthy marketing episode was visible ( $\chi^2=44.01, p<0.001$ ). Bonferroni-adjusted post hoc comparisons revealed that unhealthy marketing was significantly higher in Quarter 1 compared to Quarter 3 ( $p=0.018$ ) and Quarter 4 ( $p<0.001$ ), and significantly higher in Quarter 2 compared to Quarter 3 ( $p<0.001$ ) and Quarter 4 ( $p<0.001$ ).

At least one episode of marketing for unhealthy food and sugary drinks was visible 25% of the coded time (Table 2). There was a significant association between game quarter and the proportion of time at least one episode of unhealthy food and sugary drink marketing was visible ( $\chi^2=54.18, p<0.001$ ), with unhealthy food and sugary drink marketing higher in Quarter 2 compared to Quarter 1 ( $p=0.002$ ), Quarter 3 ( $p<0.001$ ), and Quarter 4 ( $p<0.001$ ). Marketing for unhealthy food and sugary drink was also significantly higher in Quarter 1 compared to Quarter 4 ( $p=0.013$ ).

For both alcohol and gambling, at least one episode of marketing was visible 4% of the coded time (Table 2). There was a significant association between game quarter and the proportion of time at least one alcohol marketing episode was visible ( $\chi^2=29.22, p<0.001$ ), with alcohol marketing higher in

Quarter 1 compared to Quarter 2 ( $p=0.011$ ) and Quarter 3 ( $p<0.001$ ), and higher in Quarter 4 compared to Quarter 3 ( $p=0.026$ ). The proportion of time at least one episode of gambling marketing was visible did not differ across game quarters ( $\chi^2=4.17, p=0.244$ ).

### Pro-health marketing

Overall, there were 26 episodes of pro-health marketing, totalling 2 minutes 59 seconds, when each episode was counted separately, all of which were delivered via dynamic advertising (as per Table 1). The longest pro-health marketing episode was 25 seconds (median=4 seconds). All pro-health marketing was directed toward alcohol harm prevention and mostly comprised promotions for a publicly funded campaign, specifically the Victorian Government's Transport Accident Commission's (TAC) "Towards Zero" and "Drinking. Driving. They're better apart." messages, which appeared on electronic banners surrounding the stadium.

There was one marketing episode for DrinkWise, an alcohol industry public relations initiative,<sup>54,55</sup> which appeared on the electronic scoreboard.

As per Table 2, *at least one* episode of pro-health marketing was visible 2% of the coded time. There was a significant association between game quarter and the proportion of time at least one episode of pro-health marketing was visible ( $\chi^2=10.11, p=0.018$ ), with pro-health marketing higher in Quarter 2 compared to Quarter 1 ( $p=0.025$ ).

### Discussion

This study shows that the 2017 AFL Grand Final television broadcast included a high frequency and extensive duration of unhealthy marketing, particularly for unhealthy food and sugary drink brands. Marketing for alcohol and gambling products was less prevalent, accounting for about one-fifth of all unhealthy marketing episodes. Overall, marketing for unhealthy products dwarfed pro-health marketing, with more than twenty times as many episodes of such marketing recorded (559 unhealthy compared to 26 pro-health marketing episodes). To our knowledge, this is the first study to investigate all three products (unhealthy food and sugary drinks, alcohol and gambling) within an AFL match – notably the Grand Final – and to quantitatively examine how marketing for unhealthy brands varies across the game.

**Table 2: Proportion of coded time that *at least one* episode of unhealthy marketing was visible, by product type and game quarter.**

	Overall (%)	Quarter 1 <sup>a</sup> (%)	Quarter 2 <sup>b</sup> (%)	Quarter 3 <sup>c</sup> (%)	Quarter 4 (%)
Unhealthy food and sugary drinks	25.0	25.4	30.5 <sup>**</sup>	22.5 <sup>***</sup>	21.1 <sup>a***b***</sup>
Gambling	4.4	4.6	3.6	4.8	4.6
Alcohol	4.3	6.2	4.0 <sup>a*</sup>	2.6 <sup>***</sup>	4.3 <sup>a*</sup>
<i>Total unhealthy marketing</i>	29.7	31.9	33.8	27.4 <sup>a***b***</sup>	25.1 <sup>a***b***</sup>
Healthy eating	–	–	–	–	–
Responsible gambling	–	–	–	–	–
Alcohol harm prevention	2.4	1.6	3.0 <sup>a*</sup>	2.0	2.7
<i>Total pro-health marketing</i>	2.4	1.6	3.0 <sup>a*</sup>	2.0	2.7

Notes:

Where multiple marketing episodes occurred simultaneously the time has only been counted once. Hence, the sum of proportions by product type do not equal the overall unhealthy marketing proportion.

a, b, c: Reference categories for logistic regression analyses.

\*\*\* denotes a significant difference from the reference category, at  $p < 0.001$ ; \*\* denotes a significant difference from the reference category, at  $p < 0.01$ ;

\* denotes a significant difference from the reference category, at  $p < 0.05$ .

While it is encouraging that there was some pro-health marketing addressing alcohol harm prevention, its capacity to cut through and impact viewers was likely to have been diluted by the fact that the broadcast featured twice as many incidences of pro-alcohol marketing (50 compared to 26). Most of the alcohol harm prevention marketing came from a reputable publicly funded campaign. A minority of pro-health alcohol messaging came from DrinkWise, an alcohol industry public relations initiative, which has been criticised for potentially benefiting industry more than public health.<sup>54,55</sup> Alternative publicly funded alcohol education campaigns are available that demonstrably improve audience awareness of specific alcohol harms<sup>56</sup> and motivate drinkers to consume less.<sup>57</sup>

There were 452 marketing episodes for unhealthy food and sugary drink brands during the Grand Final and, although some of these occurred simultaneously, at least one was visible for 25% of the coded time. The high level of unhealthy food and sugary drink marketing in one of the most watched nationally televised events (sporting or otherwise) is concerning, given that unhealthy food marketing has been identified as promoting poor diet and contributing to the obesity epidemic<sup>38</sup> and nearly two-thirds of Australian adults and more than one-quarter of Australian children are above a healthy weight.<sup>58</sup> While unhealthy food and sugary drink marketing clearly dominated both alcohol and gambling marketing in the 2017 AFL Grand Final, this same pattern was not evident in an earlier content analysis study that also focused on these three products. Specifically, Lindsay and colleagues<sup>2</sup> observed higher levels of alcohol marketing during the 2012 NRL State of Origin series (an average of 66 minutes per game) compared to both gambling (9 minutes per game) and unhealthy food and sugary drink (3 minutes per game) marketing. These contrasting findings are not unexpected, with previous research suggesting that different sports may be targeted by, or more strongly associated with, particular products<sup>59,60</sup> or that the products promoted can vary between games<sup>50</sup> or between broadcasts of the same game<sup>4</sup> within sporting codes.

In the present study, for each of alcohol and gambling marketing at least one episode was visible 4% of the coded time. Although less prevalent than unhealthy food and sugary drink marketing, the presence of promotions

for products that are not legally available to persons under 18 years of age raises serious questions about the kind of messages elite sport is sending young people about alcohol and gambling. Alcohol sponsorship is known to influence children's product awareness, preferences and consumption,<sup>28,61</sup> rendering the 322,000 Australian children who watched the AFL Grand Final<sup>49</sup> vulnerable to such marketing effects. (To put this figure in perspective, this is enough children to fill the Melbourne Cricket Ground three times over.) Prior studies indicate that levels of alcohol and gambling marketing can vary considerably within sporting codes. For example, an examination of the 2012 AFL finals series found the frequency of alcohol marketing ranged between games, likely as a function of venue, with the semi-final at ANZ stadium in Sydney featuring 570 episodes compared to the Grand Final at the Melbourne Cricket Ground featuring 67 episodes.<sup>50</sup> Further, a content analysis of eight televised AFL matches from 2011 observed between two and 123 episodes (or 0.2 and 11.3 minutes) of gambling marketing per game, with free-to-air matches featuring a greater amount than matches broadcast on Pay TV.<sup>4</sup> While the level of alcohol and gambling marketing may appear low in isolated games, sports viewers' exposure is likely to be cumulative and can build up quickly if they watch several games across every weekend of the season.

More than half of the unhealthy marketing that featured in the Grand Final was fixed advertising, with dynamic advertising and branded objects, such as drink bottles, portable coolers, towels, mats and padded blocks positioned on the field's perimeter, also common. As with earlier content analyses,<sup>2-4,44</sup> these results highlight the myriad strategies sponsors use to create a saturated environment in which it is difficult for viewers to avoid this marketing or to separate it from the experience of the game itself. For example, McDonald's logos around the goal posts ensure the brand is prominent to spectators at key moments in the game (e.g. when a player is kicking for goal), and dynamic banners flash and revolve, allowing brands to intrude even in the middle of exciting play. Additionally, vision of players drinking from Gatorade-branded bottles potentially signals to the audience their tacit endorsement of the product. Celebrity endorsement has been shown to exert a powerful influence on attitudes and

preferences, particularly for children and adolescents.<sup>62-65</sup> Although these unhealthy marketing episodes often occur in brief bursts of short duration and typically feature just a brand or logo, they occur at a high frequency, and there is evidence that this mode of marketing may be more effective than longer, traditional commercial break advertising,<sup>66</sup> since exposure effects may be stronger when stimuli are not consciously attended to.<sup>67,68</sup> The formation of an environment where marketing is simultaneously pervasive and subtle, and also fused with the experience of the game, is particularly concerning when considering the strong viewership of televised sport by children, who do not recognise the commercial intent of sponsorship or have the cognitive capacity to critically evaluate advertising messages.<sup>69-71</sup>

Findings revealed that unhealthy food and sugary drink marketing was highest in the second quarter, coinciding with the time viewers may be planning their half-time snack or meal. From our study, it is not possible to determine whether this was a deliberate marketing ploy or a chance occurrence. As the majority of unhealthy food and sugary drink marketing was delivered via fixed advertising, primarily McDonald's branded goal posts, this pattern of results could be due to particular camera shots appearing more frequently in the second quarter. It is important to note, however, that the number of points scored during this quarter (a time in which the goal posts typically appear on screen for an extended period) was comparable to the other three quarters.<sup>72</sup> Alcohol marketing also varied between quarters, with higher prevalence in the first quarter compared to the middle quarters, although the magnitude of these differences was relatively small.

The ubiquitous nature of unhealthy marketing in the 2017 AFL Grand Final underlines the inadequacies of the current system of largely voluntary and mostly self-regulated advertising and marketing in Australia. Both alcohol advertising regulations and guidelines pertaining to food advertising to children exempt marketing that occurs within sport broadcasts.<sup>73-80</sup> Given that more advertising for unhealthy food and sugary drink and alcohol products has been observed during televised sport than during any other programming,<sup>43,81</sup> this represents clear loopholes in the frameworks intended to protect young people. Similarly, although a ban on betting and gambling commercials during live sport broadcasts between 5.00 am

and 8.30 pm was introduced in March 2018, the restriction excludes sponsorship (termed "incidental accompaniment"),<sup>75</sup> meaning that children and other vulnerable groups remain exposed to gambling advertising embedded within the game. Thus, reforms are needed that place tighter restrictions, or ban altogether, sport sponsorship by unhealthy brands.

The successful removal of tobacco sponsorship in Australia in the early 1990s provides a useful model for how other unhealthy product sponsors could feasibly be banned from sport without compromising the viability of these events.<sup>82</sup> Replacing unhealthy sponsorship with health promotion sponsorship, as occurred with tobacco, could form one aspect of multi-component strategies to address overweight and obesity, and harms related to alcohol and gambling.<sup>83,84</sup> There are already some examples of this occurring, most notably Western Australia's Healthway partnerships with the Western Australian Cricket Association (WACA) and West Coast Fever netball team, which include promotion of their *Alcohol. Think Again* and *LiveLighter* campaign messages, respectively.<sup>85,86</sup> However, the dearth of pro-health marketing in the 2017 AFL Grand Final – of which none were promoting good nutrition – shows there is scope for more of these types of sponsorship relationships, particularly in the AFL context. It should also be noted that in addition to the unhealthy and pro-health brands quantified in our study, many other brands featured throughout the game, from car manufacturers and airlines to electronics producers and retail and media outlets, suggesting that sport sponsorship is an attractive marketing avenue for a wide variety of brands. It is, therefore, likely that the removal of sponsorship by unhealthy food and sugary drink, alcohol and gambling products would allow other brands to contend as sponsors rather than render such sporting events unviable.

A number of study limitations should be noted. First, while content analysis enabled us to document the amount of unhealthy and pro-health sponsor marketing that spectators were potentially exposed to, it did not measure spectators' actual exposure to, or recall and recognition of, sponsor brands; this would have required a separate study. Second, only promotions that were visible for at least one second during

in-game time were coded; we did not, for example, capture sponsored segments that were televised at half-time (e.g. Gatorade AFL Grand Final Sprint, Macca's Champion Player) or pre-game footage inside the team changerooms where Gatorade signage was prominently displayed. Consequently, our study likely provides a conservative estimate of the volume of unhealthy marketing that featured in the televised coverage of the 2017 AFL Grand Final. Third, this study focused on a single, broadcast sporting event and did not assess spectators' exposure to promotions for unhealthy products at the stadium. Future research should investigate the extent and nature of unhealthy and pro-health sponsorship across multiple sports and venues, including within both live stadium and broadcast settings, to provide a clearer understanding of how companies use sport sponsorship to reach and influence consumers with marketing for potentially harmful products.

## Conclusions

The televised broadcast of the 2017 AFL Grand Final featured a high frequency and extensive duration of unhealthy marketing, especially for unhealthy food and sugary drink brands. Marketing was delivered in repeated brief bursts and via numerous promotion types embedded within the game, creating a saturated environment in which marketing is not only hard to avoid but difficult to separate from the experience of the game itself. Given the effectiveness of advertising in driving attitudes, preferences and behaviours related to potentially harmful products, these study findings add evidence to support calls for greater regulation of sport sponsorship by unhealthy food and sugary drink, alcohol and gambling brands.

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