



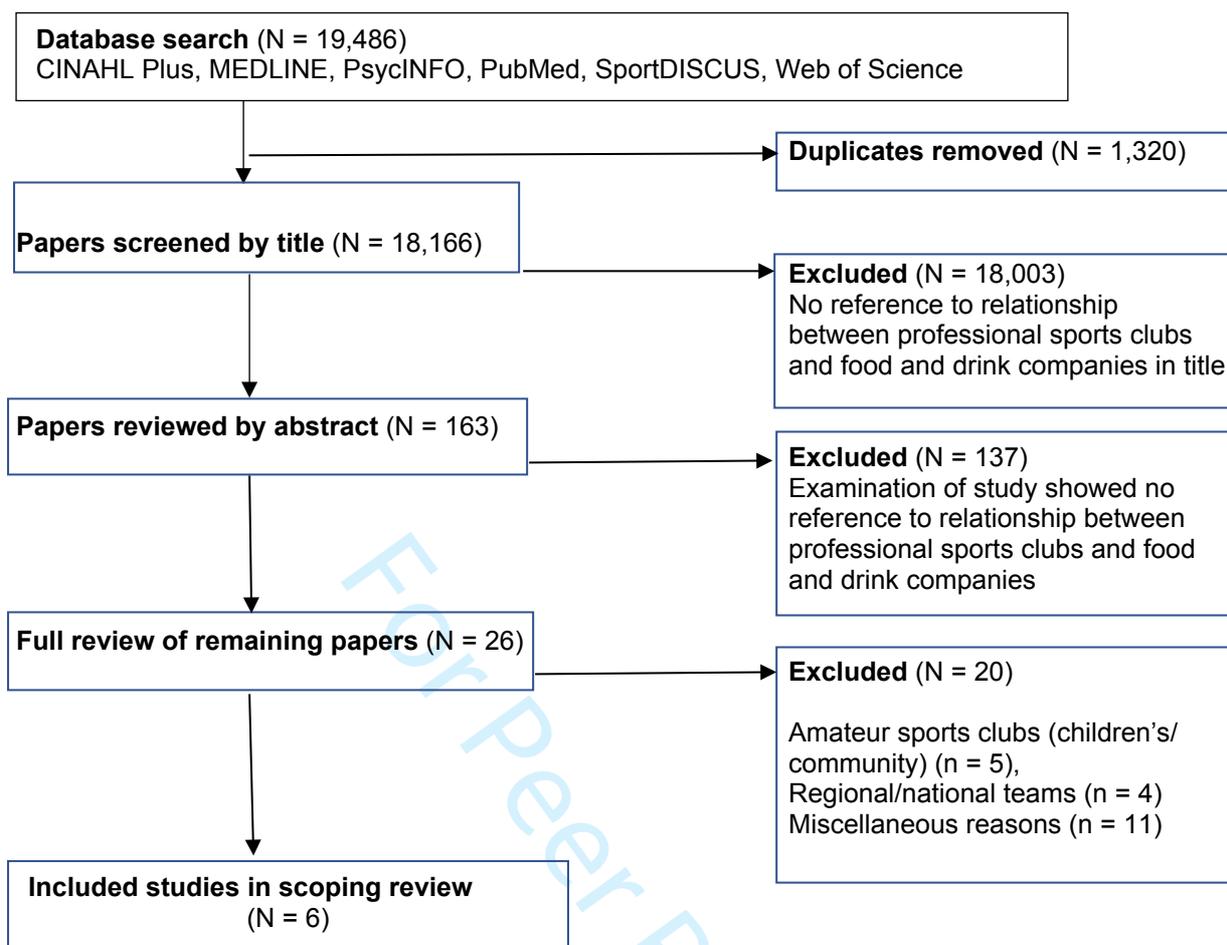
Ireland, R., Chambers, S. and Bunn, C. (2019) Exploring the relationship between Big Food corporations and professional sports clubs: a scoping review. *Public Health Nutrition*, 22(10), pp. 1888-1897. (doi:[10.1017/S1368980019000545](https://doi.org/10.1017/S1368980019000545))

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For Peer Review

# 1 **Exploring the relationship between Big Food corporations and professional** 2 **sports clubs: a scoping review**

## 3 4 **Abstract**

### 5 **Objective**

6 Professional sport occupies a prominent cultural position in societies across the globe and  
7 commercial organisations make use of this to promote their products. This scoping review  
8 explores existing academic literature on the relationship between professional sports clubs  
9 and food and drink marketing and considers how this relationship may impact upon the  
10 public's health.

### 11 **Design**

12 The scoping review searched six databases. Experts were also consulted. Records written in  
13 languages other than English were excluded. We also excluded records relating to mega  
14 events (e.g. Olympics, Football World Cup) and alcohol marketing, because of the attention  
15 already given to these.

### 16 **Setting**

17 **Professional sports clubs.**

### 18 **Participants**

19 **N/A**

### 20 **Results**

21 We identified 18,166 titles, reviewed 163 abstracts and read 26 full texts. We included six  
22 papers in the review. Four were from Australia and New Zealand. The Australasian literature  
23 largely focussed on the marketing of food and beverages to children and the potential impact  
24 on consumption. Single papers from researchers in Turkey and the US were identified. The  
25 Turkish paper analysed shirt sponsorship in football leagues internationally and showed food  
26 and beverage (including alcohol) companies were the most common sponsors. The US paper  
27 examined a mixed reaction to a football team named after an 'energy' drink.

### 28 **Conclusions**

29 Commercial relationships between professional sports clubs and 'big food' corporations have  
30 largely eluded scrutiny in much of the world. This review highlights the lack of public health  
31 research on these relationships. Research exploring the inter-dependent commercial practices  
32 of food and drink companies and professional sports clubs is urgently needed.

### 33 **Keywords**

34 Professional sports clubs, commercial determinants of health, food marketing, sponsorship.

## 35 Introduction

36

37 Social scientists are increasingly making a case for sport to be studied with greater scrutiny,  
38 as it is “a vast global field of social, cultural, economic and political activity which cannot be  
39 ignored <sup>(1)</sup>”. Public health has come later to consider the relationship between sport and its  
40 communities, and there is now a growing literature examining the relationship between sports  
41 clubs, their stadia and health <sup>(2)</sup>. From a commercial perspective, the ability of sports clubs to  
42 harness their badge/brand to engage fans is almost unique <sup>(3)</sup>. Sport can provide a sense of  
43 community and belonging, and support can be lifelong <sup>(4)</sup>. Thus, it is unsurprising that  
44 commercial organisations often choose to use sport to market their products and develop their  
45 brand. Clubs can provide access to audiences that are large, potentially receptive and  
46 relatively stable over time. From a public health nutrition perspective, some of these products  
47 are damaging to health. In 2006, the Fédération Internationale de Football Association (FIFA)  
48 World Cup had official partners of Budweiser beer, McDonald’s and Coca-Cola <sup>(5)</sup>. In 2012,  
49 the London 2012 Olympic and Paralympic Games were again sponsored by Coca-Cola and  
50 McDonald’s, with confectionary brand Cadbury also involved as a “tier two” sponsor, the  
51 sole supplier of chocolate and ice cream at the Games <sup>(6)</sup>. The link between the sugar industry  
52 and the Olympics has received international criticism from public health advocates <sup>(7)</sup>.

53

54 Mega events such as the Football World Cup and the Olympic Games are always likely to  
55 receive increased attention partly because of the huge audiences developed through global  
56 sports television broadcasting contracts worth millions of dollars <sup>(8)</sup>. Professional sports clubs  
57 also have large followings with football clubs such as Real Madrid and Manchester United  
58 having 105 million and 74 million followers on Facebook <sup>(9)</sup> for example. Thus sports  
59 themselves and traditional sponsorship practice are under increased scrutiny <sup>(10)</sup> and there is  
60 more understanding of how commercial organisations may use sports settings to target both  
61 children and adults. Studies have been undertaken in a number of countries across sports  
62 including an examination of national and regional sporting organisations in New Zealand <sup>(11)</sup>.  
63 This study found that where additional marketing activities were used to create repeat  
64 exposure for brands, these often targeted children. An international study across seven  
65 countries in Europe and Australasia in 2016 showed a positive association between exposure  
66 to alcohol sports sponsorship and alcohol consumption <sup>(12)</sup>. We know that food advertising on  
67 television impacts on children in particular and may negatively affect their snacking habits  
68 <sup>(13)</sup>.

69

70 When companies selling unhealthy products sponsor children's sport, the concern may be  
71 even greater <sup>(14-16)</sup>. In a review of the evidence presented to the World Health Organisation in  
72 2006, it was shown that food and drink companies systematically target children, marketing  
73 chocolate, sweets, soft drinks and other foods high in fat, sugar and salt. This kind of food  
74 promotion has been shown to influence children's consumption and other diet-related  
75 behaviours and outcomes <sup>(17)</sup>.

76

77 Many fast food franchises use sport sponsorship to penetrate their local markets <sup>(18)</sup>. Thus,  
78 children's frequent participation in organised sport exposes them to high levels of food and  
79 beverage sponsorship promotions <sup>(19 20)</sup>. This exposure in turn may influence their  
80 consumption of food and beverages based on positive attitudes towards sport sponsors. Kelly  
81 et al. <sup>(21)</sup> found junior sports players in Australia believed "food company sponsors are kind,  
82 generous and cool".

83

84 As public health concerns around children's health grows, and whilst childhood obesity  
85 continues to increase worldwide, advocates believe that fundamental changes will be required  
86 across the social and economic environment if we are to combat the rise in overweight and  
87 obesity, with the high consumption of unhealthy food seen as the greatest culprit <sup>(22)</sup>. Whilst  
88 mega events have received attention, professional sports clubs, sometimes huge commercial  
89 brands with an ability to influence millions of fans globally, are not widely considered by  
90 public health despite their gatekeeping role in enabling brand sponsors to reach unparalleled  
91 audiences. In order for public health to influence the sponsorship choices and commercial  
92 arrangements that professional sport clubs choose to make, we need to understand the scale  
93 of the issue.

94

95 This scoping review was undertaken to identify how much is known about the relationship  
96 between professional sports clubs and food and beverage companies. In doing this, we sought  
97 to identify where the gaps may lie in our knowledge and highlight the need for any further  
98 research that may be required.

99

## 100 **Methods**

101 As this is an emerging area of academic interest, we anticipated the possibility that we would  
102 identify few relevant studies. In developing the scoping review we followed the framework  
103 proposed by Arksey and O'Malley <sup>(23)</sup>.

104

#### 105 *Search strategy*

106 In agreeing a search strategy, we used our existing knowledge of relevant literature and key  
107 words identified for specific papers. We discussed the strategy with colleagues, took an  
108 iterative approach for agreeing key concepts and words, and achieved a consensus before  
109 engaging in searches.

110

111 We agreed no restrictions on geography, age groups or gender. We searched for English  
112 language publications only, for practical reasons. Given our focus on professional sports  
113 clubs, we excluded individual sports men and women from our search, together with amateur  
114 or community clubs and national teams or sports governing bodies. We also excluded mega  
115 events such as the Olympics because of the attention already given to these events. Finally,  
116 we were aware that there is a growing literature around alcohol which has already received  
117 some attention on its association with sport and so excluded this from our review <sup>(12)</sup>.

118

119 Key words used for our search are shown in Table 1 below. We used four concepts to  
120 exploring the relationships between Big Food corporations and professional sports clubs:  
121 '*Professional Sports Clubs*', '*Food and drink*', '*Marketing*' and '*Health Impacts*'. For each  
122 concept, we identified a 'what'. Thus, in the focus on '*Professional Sports Clubs*' we used  
123 search terms such as '*Sports Grounds*', '*Football*', '*American Football*' and other popular  
124 sports; in '*Food and Drink*', we searched for '*Processed Food*', '*Sweet Products*' and  
125 similar. The 'who' (i.e. the consumer or fan/supporter) remained consistent as they are the  
126 target audience of the Big Food corporations in their relationships with professional sports  
127 clubs.

128

129 In regard to health impacts, the 'what' included the major non-communicable diseases (which  
130 may be influenced negatively through the marketing of 'unhealthy' food and drink). Food  
131 and drink were more complicated, but we agreed common terms for fast food and processed

132 food, and included the names of major producers, Coca-Cola (Coke), Kentucky Fried  
133 Chicken (KFC), McDonald's and PepsiCo (Pepsi), because of their known longstanding  
134 associations with sports sponsorship. In 'marketing', we included words describing the  
135 various methods generally employed to market food and drink. Finally, we identified both  
136 'clubs' to search for, but also the names of the largest team-based professional sports in the  
137 English-speaking world (for example, football in the UK, American football in North  
138 America and rugby in Australia).

139 [Table 1 about here]

140

141 We searched six databases to identify relevant papers: CINALH Plus, MEDLINE, PsycINFO,  
142 PubMed, SportDISCUS and Web of Science. Boolean operators were used as illustrated in  
143 Table 1. We combined each block using 'AND'. After initial trial searches, two authors  
144 discussed and refined the search terms which were finalised as above in Table 1. In addition,  
145 we used test papers to ensure our search correctly identified the relevant and appropriate  
146 research papers.

147

#### 148 *Literature selection and data synthesis*

149 The lead author carried out the first search and reviewed the titles generated. Two authors  
150 then undertook an abstract review before agreeing the papers for full review. All the authors  
151 participated in the process of reading and reviewing the 26 papers considered at this stage of  
152 the process. Discrepancies were discussed by all three authors before agreeing the final six  
153 papers to be included in the scoping review. The reference lists of included papers were  
154 searched by hand for additional references that might fit the inclusion criteria.

155 Consulted experts suggested eleven papers to consider but none met the inclusion criteria  
156 described. Of these, ten were drawn from marketing literature around North American  
157 professional sport, but, whilst their titles sounded appropriate, once examined, none made  
158 links between professional sports clubs and Big Food. The final paper excluded from the  
159 eleven was Australian in origin and was considered<sup>(24)</sup>. However, although relevant to  
160 discussions concerning sports sponsorship and examined views around this sponsorship, the  
161 paper was excluded as it was about "elite and children's sports" rather than professional  
162 sports clubs.

163

164 We anticipated that potentially there could be substantial variety in the types of study design  
165 and data available in relevant papers. With this in mind, we aimed to synthesise studies  
166 thematically, by country or study design depending on what was most appropriate after all  
167 studies had been identified. **When a review includes different study designs, established tools  
168 for assessing risk of bias or methodological quality are not appropriate. We therefore used a  
169 scoping review to address our aim and to enable us to see as wide a breadth of the relevant  
170 literature as possible.**

171

## 172 **Results**

173 Figure 1 details the process described above and the results obtained at each stage. The  
174 database searches generated 19,486 items including papers. A further 11 papers were  
175 suggested by experts working in the area of public health and sport. The final number of  
176 items included in the search was 18,166 after duplicates were removed. The lead author then  
177 reviewed all 18,166 and retained 163 papers for abstract review. One hundred and thirty-  
178 seven papers were excluded at this stage as although sport and food or sponsorship were  
179 often indicated in titles, abstracts indicated that professional sports clubs were not included in  
180 their remit. Two authors then undertook the abstract review before agreeing 26 academic  
181 papers for full text review. Of the 26 papers selected for review, 14 originated from Australia  
182 and New Zealand. Twenty publications were excluded as they did not meet the inclusion  
183 criteria detailed above. These were excluded for a wide number of reasons, with the most  
184 common being the article focused more on aspects of commercial sponsorship of sport in  
185 general, rather than professional clubs.

186 *[Figure 1 about here]*

187

188 The 20 papers excluded during full text review received careful scrutiny. The studies from  
189 Australia and New Zealand were particularly relevant to the wider discussion around sport  
190 and health, and suggested that the food and drink industry target their sponsorship to  
191 children's sport within the community. The organisation of Australian sport reflects the  
192 federal system of government and includes national and state sporting organisations who are  
193 represented as peak or umbrella organisations. These peak organisations have received  
194 attention in Australian academic literature because of the media attention they generate, and

195 the consequent attention they receive from commercial sponsors. However, as regional  
196 bodies, they fall outside the remit of this scoping review.

197

### 198 *Characteristics of included studies*

199 Table 2 below lists the six papers which were included in the review showing their authors,  
200 study design, study countries of interest and main results. As is common in scoping reviews,  
201 study designs varied substantially. Two studies had an experimental design <sup>(25 26)</sup>. Other  
202 study designs were a systematic review <sup>(27)</sup>, a case study <sup>(28)</sup>, a content analysis <sup>(29)</sup>, and a  
203 survey of professional football team shirt sponsors <sup>(30)</sup>. Three studies contained data from  
204 Australia <sup>(25 26 29)</sup>, one from the USA and Austria <sup>(28)</sup>, and two had a worldwide scope <sup>(27 30)</sup>.  
205 Sports examined included football (soccer) <sup>(28 30)</sup>, rugby league <sup>(25)</sup> and union <sup>(26)</sup>, Australian  
206 football <sup>(25 26)</sup>, basketball <sup>(25)</sup>, netball <sup>(26)</sup>, and cricket <sup>(25-27 29)</sup>.

207

208 ***[Table 2 around here]***

209

210 Five of the six studies examined the possible relationship between sports spectators and the  
211 advertising and sponsorship that they may be exposed to in stadia or through watching  
212 broadcasts <sup>(25-29)</sup>. The final study <sup>(30)</sup>, a survey, focused more on the potential scale and value  
213 of sports sponsorship in generating income for football clubs, with food and drink  
214 sponsorship identified as a product category.

215

### 216 *Main Findings*

217 Overall, results highlighted the commercial potential of corporate actors from the food and  
218 beverage industry engaging with professional sport. Large quantities of money were  
219 available to clubs, with food and beverage companies the leading product category of  
220 sponsorship <sup>(30)</sup>. The potential reach of sponsorship and advertising to sports fans was  
221 highlighted, as well as some evidence that young fans had internalised associations between  
222 teams and certain brands/products <sup>(25 26)</sup>. Results also suggested that sponsorship could be  
223 lucrative for the clubs involved. A single study highlighted that sponsorship relationships  
224 could result in negative reactions from fans <sup>(28)</sup>.

225

### 226 Extent of food and beverage advertising

227 Unlucan <sup>(30)</sup> classified the main shirt/jersey sponsors in the top (men's) football leagues of 79  
228 countries. The study highlighted the vast money available to clubs when working with a shirt  
229 sponsor, providing examples from a range of European football clubs. For example Unlucan  
230 noted that FC Barcelona earned around 25 million GBP per year from the Qatar Foundation  
231 for their shirt sponsorship in 2014-15 (this is dwarfed by the deal announced by Real Madrid  
232 with Emirates Airlines in September 2017 for \$82 million dollars per year <sup>(31)</sup>). When shirt  
233 sponsorship was analysed, the sector with the largest number of shirt sponsors (149 from 969  
234 teams – 15%) was food and beverage companies including alcohol producers. The next most  
235 represented industrial classification was travel and leisure companies which included  
236 gambling, such as online gambling, online casinos and other betting companies (120  
237 companies – 12%). The study noted that “in some countries laws and regulations do not allow  
238 companies in industries like tobacco, gambling and alcohol to sponsor football/soccer clubs”,  
239 p51. It was also noted that some companies (such as Pepsi and McDonald's) sponsor “several  
240 teams”, p48. The study concluded that in an environment of increasing costs, shirt/jersey  
241 sponsorship represented one of the most important revenue sources for football clubs.

242

#### 243 Potential reach and fan responses

244 Jensen et al.'s <sup>(28)</sup> study suggested that professional clubs must approach sponsorship  
245 cautiously. Using a case study methodology, they detailed the negative reaction of fans to the  
246 renaming and branding of two football teams, after receiving sponsorship from Red Bull, an  
247 energy drink company. The study found opposition to renaming professional football teams  
248 after the Red Bull energy drink, and that this opposition came from politicians and civic  
249 leaders as well as fans.

250

251 The four remaining studies focused on fan exposure, with two studies specifically examining  
252 children's recognition of professional sports club sponsors <sup>(25 26)</sup>. Data from these studies  
253 were collected in Australia. Sherriff et al. <sup>(29)</sup> analysed sports sponsorship by food and  
254 alcohol companies in Australian cricket (in limited over competition specifically). They  
255 considered the proportion of time that the main sponsor's (Kentucky Fried Chicken) logo was  
256 seen during three telecasts, the extent of paid advertising in the telecasts, and also included  
257 the associated ground advertising. They suggested sport sponsorship through telecasts was  
258 able to saturate family viewing time without any form of regulation. The main sponsor's logo  
259 was visible in some form (including on equipment and clothing) for 44% of the game time in  
260 one telecast and 74% of the game time in the other.

261  
262 Pettigrew et al. <sup>(26)</sup> used an experimental design with 164 5-12 year olds living in Perth,  
263 Western Australia to explore children's implicit associations between popular sports and a  
264 range of sports sponsors (10 out of 23 of which were for unhealthy foods and beverages).  
265 Three quarters of the children (76%) were able to align at least one correct sponsor with the  
266 relevant sport. Just over half correctly matched an Australian Football League team with its  
267 fast-food chain sponsor. In addition, children appeared to associate certain sports with  
268 unhealthy food and beverages in general, even if they did not identify the correct unhealthy  
269 food and beverage sponsor.

270  
271 Bestman et al. <sup>(25)</sup> used similar techniques to measure the implicit recall of team sponsorship  
272 by children aged 5-12 years. The sponsors (two unhealthy food) of seven sporting teams were  
273 used covering the sports of rugby league, Australian Football League, basketball and cricket.  
274 Of the 85 children included in the study, 77% were able to identify at least one correct shirt  
275 sponsor, with 9-12 year olds significantly more likely to recall sponsors than the younger  
276 children. Similar to Pettigrew et al. <sup>(26)</sup> associations between sponsorship and teams was  
277 identified at both the brand and product level. In addition, teams that were identified as being  
278 most liked by children were sponsored by brands selling unhealthy foods.

279  
280 Carter et al. <sup>(27)</sup> undertook a systematic review to identify and critically appraise research on  
281 food environments in sports settings. They found fourteen English-language studies, of which  
282 ten were from Australia and one from New Zealand. Studies included in the review were  
283 mainly concerned with junior level and amateur sports clubs, and thus these studies' findings  
284 were not relevant to this scoping review. A single study (Sherriff et al. <sup>(29)</sup>) was identified as  
285 meeting the inclusion criteria for the scope of our review, and has been discussed above.

286

287

## 288 **Discussion**

289

290 This scoping review found very few papers examining the health-related dimensions of  
291 commercial sponsorship by food and beverage companies of professional sports clubs. We  
292 therefore can conclude that this is an area that has received little scrutiny from an academic  
293 public health perspective.

294

295 The six included papers covered a variety of sports and highlighted that sponsorship by  
296 brands selling unhealthy products is common, and that this exposure is likely to create an  
297 association between clubs and sponsors amongst fans. As stated in the introduction, there  
298 appears to have been greater academic examination of sponsorship by brands selling  
299 unhealthy food in Australia. These Australian studies have been particularly concerned about  
300 the impact on children and young people of this kind of sponsorship. To develop the  
301 understanding of these findings, there is a clear case to be made for further studies to be  
302 undertaken worldwide on the impact of sports sponsorship on buying preferences.

303

304 The papers identified primarily related to sports clubs in high income countries, although  
305 Unlucan's study of football shirt sponsorship covered 79 football leagues. Given this, our  
306 review does not reflect the global reach of many sports clubs. The English Premier League  
307 (the richest football league in the world) broadcast in 212 territories attracting approximately  
308 4.7 billion views per season <sup>(32)</sup>, highlighting that English football clubs' relationships with  
309 junk food and drink brands is likely to influence behaviour beyond the United Kingdom,  
310 including in low income countries. Cricket is another sport with a significant global following  
311 including in India and Pakistan. Although no studies were found linking Indian professional  
312 sports clubs with Big Food corporations, Silk and Andrews <sup>(33)</sup> describe how Indian cricket  
313 and its star performers have been used to promote both Coca-Cola and Pepsi.

314

315 It is surprising that advertising and sponsorship by unhealthy foods and beverages in  
316 professional sports clubs has largely escaped scrutiny within the academic public health  
317 literature, despite commercial determinants of health being added to those originally listed in  
318 the Ottawa Charter <sup>(34)</sup>. Kickbusch <sup>(35)</sup> argues that in the 21<sup>st</sup> century, we need to address the  
319 interface of the political and commercial determinants of health; in other words, how society  
320 and government are affected by powerful transnational companies and their marketing. She  
321 wrote that in the mid-1980s we underestimated globalised corporate and marketing power  
322 and gave as an example how access to beer was provided at the FIFA World Cup in Brazil at  
323 the insistence of the FIFA General Secretary despite this being contrary to Brazilian law. In  
324 this example, the commercial clout of sponsorship overrode a state's law, reflecting the  
325 debate globalisation theorists have about the erosion of state power in an era of global  
326 capitalism <sup>(36-38)</sup>.

327

328 Gilmore et al. <sup>(39)</sup> discuss how corporations may contribute to the global burden of disease.  
329 Food and alcohol companies often use corporate social responsibility to enhance reputation  
330 and to promote brands. And it can be argued that sport is a useful vehicle for the marketing of  
331 food companies. We have highlighted that more research has been carried out in Australia  
332 and New Zealand concerning sport and health than in other countries, and it is argued that the  
333 consumption of live sport is mirrored by the consumption of high quantities of “meat pies,  
334 chips and beer” in these countries <sup>(40)</sup>. However, researching the commercial determinants of  
335 health in sport is still a relatively new area. There is likely to be further scrutiny of shirt  
336 sponsorship in particular as individual players <sup>(41)</sup> and some fans <sup>(42)</sup> may object to some  
337 industries’ involvement from a wide range of perspectives. Since Jensen et al. <sup>(28)</sup> published  
338 their Red Bull study, the energy drink company has founded a team known as RB Leipzig  
339 now playing in the top tier of the German Bundesliga. Both RB Leipzig and Red Bull  
340 Salzburg qualified for UEFA’s Champions League in 2017/18 raising questions about  
341 ownership and fair sporting competition <sup>(43)</sup>. RB Leipzig has also raised concerns from  
342 German football fans who dismiss them as a “plastic club” whose purpose is to help sell fizzy  
343 drinks <sup>(44)</sup>. Crompton <sup>(45)</sup> highlights that the primary source of reputational risk for a  
344 commercial sponsor in sport (such as Red Bull) may be the “increased public sensitivity to  
345 the negative health impacts of some product categories, most prominently those of tobacco,  
346 alcohol, gambling and products that are high in fat, salt or sugar”, p.420.

347  
348 Professional football shirt sponsorship by gambling and the online betting and casino industry  
349 has received attention recently <sup>(46 47)</sup> and this has become a political issue with the British  
350 Labour Party promising to end gambling industry shirt sponsorship should it form the next  
351 government <sup>(48)</sup>. Just as ethical debate about the appropriateness of sponsorship is being  
352 applied to mega events and whether policies can be applied to provide healthier environments  
353 <sup>(49)</sup>, this scrutiny is likely to be applied to individual professional clubs and leagues in the  
354 future.

355  
356 The evidence of how food and drink and alcohol marketing through sponsorship of  
357 community and professional sport in Australia may influence children’s food and drink  
358 choices has also led to advocacy from charities wanting Government action on this type of  
359 marketing and new approaches to sport sponsorship <sup>(50)</sup>. Spectators at sporting events often  
360 cannot understand why healthier food is not promoted when players themselves are portrayed  
361 role models for health <sup>(51)</sup>. There is certainly a case for public health advocacy to address and

362 champion the public good when food corporations use commercial levers to promote  
363 products which may be harmful to human health <sup>(52)</sup> even if care may need to be taken in the  
364 approach to this advocacy <sup>(53)</sup>.

365

366 This scoping study considered food and drink sponsorship of professional sports clubs. There  
367 are wider concerns in the public health community about how food companies build brand  
368 images and target parents and children <sup>(54 55)</sup> through Corporate Social Responsibility  
369 initiatives. This scrutiny is likely to apply to sport and the appropriateness of alcohol,  
370 gambling and food and drink sport sponsorship <sup>(56)</sup>.

371

### 372 *Strengths and limitations*

373

374 The strength of this study is that it has highlighted that the examination of food and beverage  
375 sponsorship in professional sport is an under-researched area. By using a scoping review  
376 design, we were able to accommodate a range of study designs and data into our synthesis.  
377 The search strategy was comprehensive and we believe that we captured the relevant  
378 academic literature.

379

380 A potential study weakness was that the databases we searched are primarily concerned with  
381 evidence-based peer-reviewed papers, and therefore it is possible that relevant articles in the  
382 grey literature may have been missed. Only English-language sources were retrieved and  
383 reviewed which was also a limitation. Although the scoping review design allowed us to be  
384 inclusive in terms of including a wide variety of study types, it was challenging to synthesise  
385 such disparate studies. A study such as Jensen et al. <sup>(28)</sup> used a case study approach, with  
386 relatively unclear methods, and therefore it was difficult to assess the extent to which this  
387 could be considered a research study. In addition, the other studies of fan exposure <sup>(25 26 29)</sup>  
388 were relatively small scale, with limited generalisability.

389

390 A further limitation is that due to the heterogeneity of the included studies, we could not  
391 conduct a risk of bias assessment of the included studies. Finally, we only considered  
392 professional sports clubs in this study. Individual ‘celebrity’ sportsmen and women are used  
393 to endorse a wide range of products in order to influence consumption <sup>(57)</sup> and this deserves  
394 further study.

395

396

397 **Conclusions**

398

399 Given the prominence sport plays in international cultures, it can provide corporations with  
400 an unparalleled opportunity to promote their brands and products on a global stage. It is no  
401 surprise that some of the wealthiest food and drink companies will use this reach by trading  
402 on the relationships and status in the community that professional sports clubs often possess.  
403 This scoping review demonstrates that there is only a very limited evidence base in this field.  
404 If advocates are to address the commercial determinants of health in sport, a wider body of  
405 evidence will be required to convince others of the potential of unhealthy food and beverage  
406 sponsorship to impact negatively on health. As has been described, fans themselves have a  
407 view on 'their' clubs and the brand relationship between supporters and clubs is complex.  
408 More studies that reveal how food and drink marketers work, and the audiences they  
409 carefully select, will lead to a wider discussion about the ethics of sport sponsorship, whether  
410 the sponsor is a fast food company, a gambling corporation or an alcohol product. This  
411 discussion is likely to include a debate about regulation and legislation by sports leagues,  
412 governing bodies of sport and by government, particularly when the audience of most sports  
413 includes children and young people. More comprehensive studies on the relationship between  
414 commercial corporations and sport are therefore urgently required.

415

416

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553 **Table 1: Scoping review by keyword/s search**

Focus	What	Who
Professional Sports Clubs	Stadi* OR "Sport grounds" OR "Club" OR "Clubs" OR "Football" OR "Soccer" OR "Rugby League" OR "Rugby Union" OR "Cycling" OR "Motor racing" OR "Netball" OR "Basketball" OR "Baseball" OR "American Football" OR "Aussie Rules Football" OR "Gaelic Football" OR "Cricket" OR "Hockey" OR "Ice-hockey"	"Fans" OR "Supporters" OR "Staff" OR "Employees" OR Communit* OR "Children" OR "Kids" OR "Viewers" OR "Spectators"
Food and drink	"Food" OR Drink* OR "Fast food" OR "Processed food" OR "Junk food" OR "Unhealthy food" OR "Sweet products" OR Chocolate* OR "Beverage" OR "Sugary drinks" OR "Sugary beverages" OR "Chips" OR "Pies" OR "Cereals" OR "Catering outlets" OR "Catering concessions" OR "Food stalls" OR "Coca-Cola" OR "Coke" OR "Pepsi" OR "PepsiCo" OR "McDonald's" OR "Kentucky Fried Chicken" OR "KFC" NOT "alcohol*"	"Fans" OR "Supporters" OR "Staff" OR "Employees" OR Communit* OR "Children" OR "Kids" OR "Viewers" OR "Spectators"
Marketing	Advert* OR Sponsor* OR "Public relations" OR "Corporate social responsibility" OR Brand* OR Promotion* OR "Food promotion" OR "Drinks promotion" OR "Broadcasting" OR "Stand names" OR "Ground names"	"Fans" OR "Supporters" OR "Staff" OR "Employees" OR Communit* OR "Children" OR "Kids" OR "Viewers" OR "Spectators"
Health impacts	Health* OR "unhealthy" OR "Public health" OR "Population health" OR Health promotion* OR Health educ* OR "Noncommunicable diseases" OR "Chronic diseases" OR "Cardiovascular disease" OR "Coronary heart disease" OR "Ischaemic heart disease" OR "Ischemic heart disease" OR "Stroke" OR "Cancer" OR Diab* OR Obe* OR "Oral health" OR "Teeth" OR "Cholesterol"	"Fans" OR "Supporters" OR "Staff" OR "Employees" OR Communit* OR "Children" OR "Kids" OR "Viewers" OR "Spectators"

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**Table 2: Summary of the papers included for review**

Authors	Study design and methods	Study countries of interest	Sport/s considered	Results
Bestman et al. <sup>(25)</sup>	Experimental study conducted using projective techniques to measure the implicit recall of team sponsorship relationships of 85 children aged 5-12 years.	Australia (New South Wales)	Rugby league, Australian Football, basketball and cricket	Three quarters (77%) of the children were able to identify at least one correct shirt sponsor. Results showed that age had an effect on number of shirt sponsors correctly recalled with 9-12 year olds being significantly more likely than 5-8 year olds to correctly identify team sponsors.
Carter et al. <sup>(27)</sup>	Systematic review of the availability and marketing of food and beverages to children through sports settings.	Worldwide (English language)	Various (only cricket relevant)	The review identified fourteen studies with most studies originating from Australia (n = 10). Literature exploring food environments was limited. Club policies focused on the impact of health promotion funding rather than the impact of sponsorship in sports settings.
Jensen R et al. <sup>(28)</sup>	Case study of the reaction to Red Bull naming its soccer teams after the corporation. A descriptive report reviewing the responses of media observers and fans.	Austria USA	Soccer (football)	The reaction to Red Bull naming its soccer teams after the corporation and prominently displaying the company logo on team uniforms is a mixed one among media critics and fans.
Pettigrew et al <sup>(26)</sup>	Experimental study conducted using projective techniques with 164 children aged 5-12 years to align sponsors with the relevant sport.	Australia (Perth)	Variety including Australian Football, Rugby Union, soccer, Netball, Cricket	Three quarters (76%) of the children were able to align the sponsors with the relevant sports. 54% of the children matched the most popular sport (an Australian Football League team) with its fast food sponsor.
Sherriff et al. <sup>(29)</sup>	Content analysis of three cricket telecasts (including playing time and advertising breaks) considering the sponsor's logo, paid and associated ground advertising.	Australia	Cricket	The main sponsor's logo was visible on a range of equipment and clothing that resulted in it being clearly identifiable from 44% to 74% of game time.
Unluca <sup>(30)</sup>	Survey of main jersey (shirt) sponsors of 1147 football/soccer clubs in 79 countries top leagues. Industry Classification Benchmark used to classify industries of sponsors.	Worldwide	Soccer (football)	Companies are major sponsors of football/soccer clubs. Jersey (shirt) sponsorship where main sponsors have their names on the front of the shirt is an important source of revenue for clubs. This study showed that food and beverage company sponsorship (including alcohol) is the most common (149 companies). 257 (22%) teams are sponsored by the consumer goods industry.