

## **Who ate all the pies? The importance of food in the Australian sporting experience**

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## Abstract

Australians watch live sport in large numbers and traditionally consume high quantities of meat pies, chips and beer within stadiums. However the food and beverage preferences of stadium-attending Australian sports fans are not well understood, particularly in comparison to their North American and European peers. This paper utilised a survey-based approach to understand the satisfaction of fans of Australia's national Rugby Union team with stadiums in Australia. While food and beverage offerings were found to be a particular point of dissatisfaction the price and service quality were found to be of greater concern than the healthiness of these. The study also drew on the researchers' observations and knowledge of recent Australian stadium redevelopments to examine how the traditional offerings may be changing. We conclude that in order to attract greater attendances from a wider market, stadiums in Australia need to provide more varied, higher quality, healthy food and beverage offerings that are both affordable and easy to eat.

**Keywords:** stadiums; food; food and beverage; sports fans; fan experience; healthy stadia

## Introduction

Every year over two-fifths of Australians aged 15 and over attend a sporting event. This equates to almost 8 million adults attending each year (ABS 2012). However, while the average 2012 attendance figure for the Australian Football League (AFL) was almost 33,000 attendees per match the figures in other Australian sporting codes does not match this number (Sporting Intelligence 2013). For instance, the average figure in the National Rugby League (NRL) was only 16,423, which falls some way short of the National Football League (NFL) (68,278), German Bundesliga (43,331), English Premier League (36,464), and the Major League Baseball for example (30,517) (Barrett 2016). Indeed German Association Football team Borussia Dortmund averaged 80,451, NFL American

Football team Dallas Cowboys 88,531, and NCAA American Football team Michigan 112,252 fans per match in 2012 (Sporting Intelligence 2013). With the amount of sport available on television increasing (Rowe & Scherer 2014), Australian sports teams may find it increasingly difficult to encourage an increasingly sedentary population to attend live events, especially if compounded by additional negative factors such as poor quality food and beverage at the stadium venues. This inactivity creates an interesting social obligation on professional sporting bodies to not only use sport as a spectacle for television, but to also encourage fans to be an active part of a healthier, sport inspired lifestyle (Parnell et al. 2015; Inoue et al. 2015; Anagnostopoulos 2012).

Academic studies into attendance and/or spectator satisfaction at sports events have been conducted across a number of continents, including North America, Europe, Asian, and Australasia, and in a number of sports, including golf, American football, basketball, association football and rugby league. Bouchet et al. (2011) argue that sports spectators share common characteristics and so it is possible to compare spectators across sports, time, and location. Analyses of these studies have revealed a number of factors influencing attendance at sporting events. In a Spanish setting it was found that attendance at sporting events was linked to social class (Lera-López, Ollo-López, & Rapún-Gárate 2012). Those spectators of middle and high social class, with average to high level of education and socio-economic status, had higher levels of attendance at professional sporting events. Gender differences have also been identified in the experiences of sports spectators. Men were more likely than women to evaluate the performance of athletes competing in the sport while fantasising that they were a part of the action. In such a way men would achieve a sense of flow during sporting competitions. Conversely women were more likely to appreciate the aesthetic beauty of the sport performance, by either men or women, and to evaluate the performance of athletes (Madrigal 2006).

There are many factors that influence a person's decision to attend a sporting event, such as price, transport, and availability of competing leisure activities. One factor, which has been examined in some detail, is that of the stadium itself. A number of studies found that the physical environment of a sports stadium influenced attendance (Hill & Green 2000; Wheaton 2004; Yusof & Lee 2008), however, there is also need for research

into the less tangible elements of the sporting experience. Similarly, in Australia there are a range of influences which impacts on the less tangible elements of the sporting experience. This paper considers the importance of food in the Australian sporting context using a case study of fans of Australia's national Rugby Union team (commonly referred to as the Wallabies).

### **At the stadium**

Once at a venue perceptions of service quality will impact on a non-avid spectator's satisfaction, which in turn influences re-patronage intentions (Wakefield & Blodgett 1996) as spectators who enjoy spending time at the stadium are inclined to return to the stadium for future games (Wakefield & Sloan 1995; Greenwell, Fink & Pastore 2002; Blank, Sweeney & Fuller 2014). However it is noted that most sporting teams will have a core of hardened fans who will attend regardless of factors such as team performance, weather conditions and stadium facilities. When spectators return to a stadium repeatedly over time a sense of identification with a venue can be developed (Penny & Redhead 2009). This love of place has been termed topophilia (Bale 1996; Ramshaw & Gammon 2010) and home stadiums have been found to generate location pride, awareness, and geographic memories (Ramshaw & Gammon 2010). Bale (1996, 167) suggests that stadium developers and planners have "too often ignored the power of topophilia", including the influence of food and beverage offerings.

In terms of the venue's sportscape, it has been shown that satisfaction is influenced by whether or not spectators feel crowded or cramped, and, therefore, poorly designed seating, with limited elbow room, impact on spectator satisfaction (Lambrecht, Kaefer, and Ramenofsky 2009). Wakefield and Sloan (1995) found that perceived crowding had the strongest effect on spectators' desires to stay or leave a stadium. In addition, where spectators have difficulty reaching important destinations, including the food and beverage outlets, there is evidence of increased spectator frustration and a decreased desire to stay at the venue and to return to future games (Wakefield & Sloan 1995; Wakefield, Blodgett & Sloan 1996; Greenwell, Fink & Pastore 2002; Sarstedt et al. 2014). The helpfulness of employees/volunteers can also impact (both positively and negatively) on spectator satisfaction (Lambrecht, Kaefer, and Ramenofsky 2009).

Wakefield and Sloan (1995) also identified stadium food prices as an area of dissatisfaction for many sports fans. Spectators with access to hospitality facilities (such as complimentary refreshments, easier/closer parking, private seating) have been found to be more satisfied with the sportscape than general admission spectators (Lambrecht, Kaefer, and Ramenofsky 2009).

### **Food choices**

Food plays an important role in the stadium experience (Sukalakamala, Sukalakamala and Young, 2013). Although there is increased awareness of the impact of diet on health, the food offered to spectators at sports stadiums continues to be of poor quality and typically is not healthy (Ireland and Watkins 2010). While there is no one definition of healthy eating options, organisations such as the World Health Organisation (WHO) offer discussions around levels of fat, sugars and cholesterol in foods (WHO 2015). Lee, Heere, and Chung (2013) draw attention to the tendency of sports teams to outsource food and beverage offerings resulting in little or no influence or control over the food and beverage sold in the venues in which they play, and frequently have no healthy eating policy (Drygas et al. 2013). Stadium food has typically been similar to the high carbohydrate, fat, and calorie offerings found in fast food restaurants (Sukalakamala, Sukalakamala, and Young 2013).

In Major League Baseball (MLB), as far back as the 1990s, there have been a (limited) number of healthy options available at venues, such as frozen yogurt, teriyaki bowls and fresh fruit (Roan 1997). However the more traditional offerings of hot dogs, pretzels, and peanuts have remained dominant. Newer venues such as Icahn Stadium, a multipurpose stadium in New York City that opened in 2005, offer healthier food options including pizzas made on whole-wheat pitas, wraps, grilled sandwiches and low-fat organic parfaits (Fabricant 2005). One MLB club, the San Diego Padres, have even combined in-game physical activity breaks for spectators with healthy and competitively priced foods (Yancey et al. 2009). Choices for food and delivery options have also increased in a number of venues. Yankee Stadium in the New York borough of the Bronx serves Latin food in addition to the obligatory hot dog and hamburger (Fernandez 2007). Miami's Sun Life Stadium has served multi-cultural menus including Handmade Turkey

Empanadas, baked potatoes, and a “Pizza Dog” – a foot-long hot dog baked in pizza dough. This variety demonstrates that stadiums across North America seem to be changing by offering greater food diversity including some healthier options.

A number of stadiums, such as Rio Tinto Stadium in Utah, now offer in seat food delivery (PRNewswire 2009). Elsewhere in the United States the San Francisco 49ers have developed a stadium app that shows the length of queues for beverages while the Aviva Stadium in Ireland utilises an app that allows customers to pre-order beverages (IRFU 2014). In Australia the Penrith Panthers are introducing a digital waiter app (Jones 2015) and the Sydney Cricket Ground (SCG) has introduced Q-Hopping technology that allows fans to order and purchase food and beverage using a mobile device (SCG 2014).

Perhaps in response to the limitations of stadium food tailgating, where fans set up portable grills or barbeques in stadium car parks and cook their own food, is a popular North American alternative to in stadium dining. Tailgating has been historically associated with College football in southeastern states of North America (Keaton, Watanabe, & Gearhart 2015) but its popularity is growing. While the primary motivation for attending a tailgate may be to socialize with friends and family (Drenten et al. 2009), food is an important element (James, Breezeel, & Ross 2001) and such activities allow fans to choose alternative foods, with tailgating menus now including ribs, steaks and seafood (Russell 2011).

While some North American stadiums have made moves to offer a greater range of good tasting food, many teams and stadiums still need to make greater effort to provide menus that reflect the needs of their fans (Lee, Heere, and Chung 2013). In many European countries sports stadiums are found in less affluent areas that are often surrounded by low-quality housing (Drygas et al. 2013). The spectators that attend these venues may be more familiar and comfortable with less healthy options. In the United Kingdom (UK) Ireland and Watkins (2010) identified that healthy eating is not something that most fans associated with Association football grounds. They found that such fans described the food on offer with terms such as “awful”, “abysmal” and “atrocious” and highlighted a lack of both choice and options for those with dietary needs (2010, 684). Moreover according to a YouGov report, attendees at UK sports events believe that food is unhealthy (Tobin 2013). In addition to being of poor quality, food in European

stadiums is also perceived to be overpriced (Miles & Rines 2004; Sukalakamala, Sukalakamala, & Young 2013). For example, in their annual survey into the price of attending football matches, the BBC (2015) reveal that a pie can cost up to £4.50 (AU\$9.13 in January 2016) at some stadiums. However, it has also been found that some fans see “the match is a place for an occasional unhealthy pie [which] means it is unlikely that football fans will take easily to pies being removed from menus” (Ireland & Watkins 2010, 685).

In Australia meat pies are rather more than an occasional match day food. The meat pie is a traditional food at Australian sporting events and has been equated with the American hotdog (Kovaricek 2010). The meat pie is such traditional fare in Australia that in 2013 one of Australia’s iconic venues, the Melbourne Cricket Ground (MCG) alone sold over 300,000 pies (Veenhuizen 2014). The MCG also sold 600,00 servings of hot chips, 95,000 jam doughnuts, 65,000 burgers and 40,000 pizzas in 2013 (Rolfe 2014). Across Australia stadium menus have been rather predictable with meat pies, hotdogs, chips, and burgers dominating, all of which are typically washed down with beer. As with other countries, Australian venues have been criticised for over-pricing their food and beverage offerings (Tarbert 2015). However studies into Australian fans’ perceptions of these offerings are limited.

Sports fans are not homogenous and there are differences in the behaviours and attitudes of fans of different sports (Parry, Jones & Wann 2014), and so it is important for service providers to understand the wants and needs of their particular fan base to ensure a satisfying experience. In its simplest form, service providers need to understand the different wants and needs of male, female and family spectators. With the non-homogeneity of sports fans in mind it is important that each sporting code gains an understanding of their fans and their expectations. Furthermore, while a small number of studies have focussed on Australian sports fans (for instance Hill & Green 2000; Hall, O’Mahony & Viecele 2010) the Australian market remains poorly understood. Drawing on data from a survey of sports fans and the researchers’ engagement in this field this study aims to bridge these gaps by investigating Australian fans’ perceptions of sports stadiums and the food and beverage offerings in these.

## **Methodology**

To facilitate comparison to previous research, the methodology adopted in this study was based upon those used in the studies by Wakefield and Sloan (1995) in their study into sport service quality in Japan and America, Wakefield, Blodgett and Sloan's (1996) investigation into spectators' desire to stay at sporting events, Yoshida and James' (2011) and Byon, Zhang and Baker's (2013) examinations of service quality. A concurrent mixed methods, survey based design was primarily utilised.

## ***Participants***

Supporters of the Wallabies team on one of the Australian Rugby Union's membership databases were provided with an email invitation to complete an electronic survey on behalf of the researchers. A total of 293 completed surveys were utilised as part of a pilot study in stadium satisfaction. The majority of those completing the survey were male (87.7%) and participants were primarily over the age of 41, with this category representing 95% of the sample group (mean = 57.8, SD 10.0).

The majority of participants (93.3%, n = 249) were located in the state of New South Wales (NSW), which is on the east coast of Australia. The two NSW-based stadiums featured in the survey were ANZ Stadium (27.1%) and Allianz Stadium (51.7%), both of which are in Sydney. However it was noted that some of these members were prepared to travel interstate to attend games with responses from fans indicating that both Suncorp Stadium in Queensland (17.8%) and Etihad Stadium in Victoria (3.4%) were the most recently visited stadium. Of all respondents, over 60% had attended a game within one month prior to the survey. It was evident that there is a social element to attending a rugby match with 55.9% of respondents indicating that they attended a match with family, while a further 40.5% indicated that they attended with friends. Interestingly an overwhelming majority of female respondents (73.0%) indicated that they attended with family. With sociality playing such an important role it was hypothesised that food would also be important for these fans.

## ***Measures***



The questionnaire contained three sections. The first section asked participants to provide basic demographic information regarding gender, age, postcode and details on their most recent visit to a sports stadium. In the second section participants indicated their agreement with a series of statements based on their feelings towards the stadium they had identified. The survey utilised eight scales; getting to and around the stadium; stadium aesthetics; entertainment; screens and scoreboards; seating; food and beverage; stadium atmosphere; and stadium management – the survey scales can be found in appendix 1.

To enhance the reliability and validity of the research tool existing scales (that had previously been tested) were used, or adapted, for the purpose of this study. Additional questions relating to the design of the stadium and topophilia were added to scales previously utilised by Wakefield and Sloan (1995), Wakefield, Blodgett and Sloan (1996), Yoshida and James (2011) and Byon, Zhang and Baker (2013). Additional questions were added following discussions with a leading sport architect and based on the researchers' knowledge and observations of sports fans. The survey was then piloted with a small sample to test the face validity of the new research tool. The questionnaire was found to work well and needed few changes.

Participants were provided with multiple Likert-type scale items, with five point response options, for each scale ranging from 1 = not at all to 5 = very much. A single pre-existing scale could not be found that covered all aspects of the sporting experience and so a new scale was developed for this study. Mean scores were calculated for each individual scale item and, to allow comparisons across scales, for each scale. Given that a five-point Likert-type system was used, a mean score of greater than 2.50 was taken to indicate that respondents were satisfied with a particular scale or item.

The final section provided respondents with the chance to provide their thoughts of the most positive and most negative aspects of the stadium via two open-ended questions: *What aspects of the stadium do you consider to be particularly positive?* and *What aspects of the stadium do you consider to be particularly negative?* Answers to these two questions were collated and then initially displayed via a word cloud, before being thematically analysed. Word clouds present the most commonly used words arranged with the size of the word corresponding to the frequency of its occurrence in

responses. Such a visual trend analysis approach has been dubbed as a “simple yet effective approach” (Hunt, Gao & Xue 2014, 851) that is able to provide instant insight into responses. Such an approach has been used previously in a variety of studies such as those by Ahearn (2014), Hunt, Gao and Xue (2014), and Guggenheim et al. (2015).

### **Findings and discussion**

As shown in Table 1 participants were most satisfied with Seating and Stadium Management and least satisfied with Entertainment and Food and Beverage offerings. The scores for the Food and Beverage scale (1.89) and the Entertainment scale (1.79) were considerably lower than other scales, and this indicates dissatisfaction with these elements. However, it should be noted that the ARU members are likely to have personal and emotional connections to the Wallabies. Therefore, such traditional spectators are likely to be less consumption focussed, with entertainment and other commodification-driven features of sport having less influence over them (Giulianotti 2002). The low score for the Food and Beverage scale was therefore identified as being the greatest point of dissatisfaction for participants and required further investigation.

INSERT TABLE 1 HERE

Food and Beverage was the second-lowest ranked scale and no single scale items received a mean rating higher than 2.16 out of 5, with the price of food rated the lowest (mean = 1.66). Of the stadiums included within the survey, ANZ Stadium was rated the poorest in seven of the nine scale items. Etihad Stadium proved to be the ‘best’ performer for Food and Beverage with an overall mean rating of 2.28.

INSERT TABLE 2 HERE

Through an analysis of qualitative responses it was evident that participants enjoyed those stadiums that were in close proximity to city centres, as the availability of restaurants and bars allowed them to socialise before and after the game with friends. In terms of food and beverage offerings positive attitudes only otherwise referred to the

convenience of within-stadium outlets. However, in response to the question *What aspects of the stadium do you consider to be particularly negative?* there were numerous food and beverage-related responses and the word cloud below (see figure 1) clearly shows food and beverage provision as a particular point of dissatisfaction.

INSERT FIGURE 1 HERE

Responses to this question indicated that there is a need for a greater variety of food options at stadiums. Some participants were looking for options that present healthier alternatives to traditional fast foods and they are also looking for increased quality in what they can buy. Comments indicated that the poor food quality and the lack of healthy options meant that some participants did not eat at stadiums:

No healthy food options – I do not eat at the ground because of this.

Terrible food choices (no fresh/healthy food at all) & exorbitant prices.

However comments relating to the food and beverage options available, and in particular to healthy options, were far less common than comments on the price and time taken to be served. Terms such as “extreme” and “exorbitant” were used to describe the prices of food and beverage at venues. In addition to the price of food and beverages respondents also indicated that there was a limited number of ways in which to order and receive food. This limited number of delivery options then results in difficulties around queuing for food and beverage that further impacts on the fan experience. The standard of service was a common theme with a number of respondents suggesting that inexperienced staff contributed towards poor levels of service quality. The frustration with the food and beverage options appears to be long-standing and was exemplified in the following comment:

Catering has always been an issue, many surveys over the years with limited change.

The high price of food in Australian stadiums has been criticised by fans and the media alike and it is perhaps unsurprising that this should also be the case in this study. Australian fans want affordable or ‘value for money’ food that is served quickly, and increasingly without the need to queue. As was found to be the case with European fans it is worrying that these considerations are believed to be more significant than healthy food options (Miles & Rines 2004; Ireland & Watkins 2010; Sukalakamala, Sukalakamala, & Young 2013). While in the UK having a pie at a sports match is seen as being a guilty pleasure (Ireland & Watkins 2010) this is not the case in Australia as pies are much more popular in the wider society. In Australia the tradition of eating pies (and similar foods) may therefore be hard to move away from. Although this may be more evident for Australian males rather than females where there is some evidence to support Australian male’s preference for both fast food and meat options (Savidge, Ball, Worsley, Crawford 2007).

### **Recent developments**

Recent Australian stadium redevelopments may suggest that the tradition of poor food and beverage offering is changing. The Adelaide Oval and SCG Northern Stand redevelopments have included better quality food options, which spectators appear to have embraced. Between 2008 and 2014 the Adelaide Oval was redeveloped to include a new mid-price corporate product called the Stadium Club. The food offered at the Stadium Club included the ‘Hill of Grace Restaurant’, an à la carte restaurant specialising in local seasonal food and local beverages.

INSERT FIGURE 2 HERE

As mentioned in an email to the research team from Adam Hannon, September 23, 2015 the stadium operator took a “leap of faith” initially in developing the Stadium Club, as nothing similar had been offered at a stadium in South Australia. It has proven to be popular as Stadium Club memberships reached 96% capacity for the 2014/15 and 2015/16 seasons, memberships were at 100% capacity (with a waiting list) for the

upcoming 2016/17 season and event day attendances totalled 40,265 from March 2014 – March 2015.

The 2012-2014 SCG Northern Stand redevelopment included a ‘food court’ style food area and a microbrewery bar area offering higher quality and healthier food options, such as Doyles brand seafood and Noodle Shack brand Asian food, and higher quality custom beers. These healthier and higher quality food and beverage options constitute 11 of the 31 food and beverage counters in the redeveloped stand.

INSERT FIGURES 3 AND 4 HERE

As with the Adelaide Oval example, the food and beverage offering in the new SCG redevelopment has also been very popular with spectators. In a conversation with the researchers SCG Trustee Stuart MacGill, January 23, 2015 revealed that food and beverage sales for the opening 2015 cricket Test match surpassed the equivalent 2012 sales by 40%, exceeding SCG Trust estimates by 30%. Interestingly, the new SCG food court still offers burgers, pizzas and pies (albeit made-to-order burgers and pizzas and high quality gourmet meat pies). The popularity of the food at the new food court area may have as much to do with food quality as it does with being a healthy option but gourmet products may be expected to contain higher quality ingredients and should, therefore, be healthier. Despite the range of perceived healthier options there is still only a limited vegetarian offering available with a small number of outlets; providing an inadequate range of vegetarian meals. The food court and associated outdoor dining area are also open for major events held at other venues within the SCG precinct, expanding and enhancing the food and beverage offerings at adjacent grounds and improving the pre and post-match spectator experience.

Both of these examples would suggest Australian spectators are willingly to move away from low quality unhealthy food options if given a reasonable alternative. However, as was found in Lee, Heere, and Chung’s (2013) study stadium operators in Australia commonly outsource the operation of food and beverage outlets to external contractors. By relinquishing control over these offerings Australian stadiums do not have direct

control over the choices provided to spectators and cannot ensure that healthy options are provided. In addition external contractors typically operate a business model where costs are minimised and may prefer to offer cheap to produce food and beverages, again typified by pies, with larger returns than more expensive or more time intensive alternatives. As sporting organisations seek to increase the stadium attendance there may be a case for a revised business model which is driven by the need to provide a range of quality, healthy food options to meet the needs of fans of all ages, as opposed to a business model which pushes quality down in order to maximise profits.

### **The future for stadium food in Australia**

Food and beverage offerings were found to be a point of frustration for fans of the Wallabies. From an analysis of qualitative answers this frustration was due to a combination of the price, the ordering and delivery options, and the perceived poor service quality. In particular, food and beverage prices were seen to being too high for the quality and variety of food on offer. While the Etihad Stadium and the MCG in Melbourne have recently dropped food prices (Rolfe 2015) these are still higher than those at sporting events elsewhere. For instance the Augusta National Golf Course, home to the US Masters maintains much lower prices with the highest priced food item only US\$3 (AU\$4.28 in January 2016) and the most expensive beverage is US\$5 (AU\$7.14) for an imported beer (News Limited 2015). The variety of food available in North American venues is also certainly not seen in Australian stadiums and Australian sports fans are not unaware of such global comparisons and are unhappy with being asked to pay AU\$5 for a bottle of water or AU\$5 for a pie of poor quality (Cherny 2015).

Australia lags behind other nations in terms of food and beverage offerings in its stadiums and the data from this study reveals the levels of dissatisfaction felt by Australian spectators with the traditional offerings. Our observations of recent stadium redevelopments reveal that Australian spectators have embraced changes in stadium food and beverages, as shown by membership and sales figures for the Adelaide Oval and the SCG redevelopments respectively. The onus is now on other Australian stadiums who are yet to improved their food and beverage offerings to follow the example of the Adelaide Oval, the SCG and their North American counterparts to provide more varied, higher

quality, healthier food and beverage options that represent better value for money. Australian spectators are likely to always eat all the pies but are now demanding these are high quality, healthy and value for money.

### **Recommendations**

For stadium food options (outside of corporate à la carte offerings) to be considered realistic alternatives to the current pies, chips and pizzas we would recommend a number of principles be followed. Any alternate would need to be:

- At a similar or better price than current offerings;
- Quick to order/be served;
- Easy to eat (ideally with one hand);
- Portion controlled meals factoring in nutritional requirements;
- An existing popular food choice in the city the stadium is located.

One suitable alternative, which seemingly follows all of these principles, is the Australian version of the Japanese Nori or sushi roll. Sushi rolls are increasingly popular in Australian shopping mall food courts (Langley 2015), they are quick and easy to order and serve (they are almost always pre-prepared), they can be eaten with one hand, are generally healthy (although this depends on filling) and at AU\$3-\$3.50 each they are cheaper than pies and burgers. One added benefit of such an offering is that non-meat fillings are common and they would provide a good option for those spectators who do not eat meat. Further research investigating female and family food preferences would benefit stadium food service providers particularly if this has been one of the barriers to attending live sport venues as reflected in low attendance figures for females.

We also recommend that future research explore the offerings found in the food courts of large shopping malls (such as Westfield shopping centres in Australia – see Figure 5). These food courts have infrastructure and patronage similarities to Australian stadiums and yet provide multiple and varied, high quality options to customers. The SCG Northern Stand redevelopment has shown the food court layout can physically work in the stadium environment and further research should explore the feasibility and benefits of including such options in stadiums.

INSERT FIGURE 5 HERE

While these recommendations offer the potential to draw larger crowds from more diverse population groups to stadiums, there will be a minimal impact unless such changes are well marketed and communicated. This marketing also needs to take place within stadiums so that options that are healthier and family orientated are easily identified and accessible. This information should include the nutritional value of food and beverage offerings. While food may often be the focus of healthy eating, it is also important to offer healthier alternatives to beverages such as soft drinks, which contain high sugar contents. Finally, given the overrepresentation of male participants in our survey – 87.7% compared to 63.6% of spectators at rugby union in Australia generally (ABS 2012) – additional research is needed to examine the food and beverage preferences of female spectators.

Author Version



**Table 1. Scale mean scores**

<b>Scale</b>	<b>Mean Score</b>
Seating	3.77
Stadium Management	3.17
Getting to and Around the Stadium	3.16
At the Stadium (Topophilia)	2.98
Screens and Scoreboards	2.87
Aesthetics	2.79
Food and Beverage	1.89
Entertainment	1.79

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**Table 2. Food and Beverage Scale Item mean scores**

<b>Food &amp; Beverage</b>					
	<b>All Stadiums</b>	<b>ANZ</b>	<b>Allianz</b>	<b>Etihad</b>	<b>Suncorp</b>
<b>This stadium offers a wide variety of food choices</b>	<b>2.16</b>	<b>2.21</b>	<b>2.09</b>	<b>2.20</b>	<b>2.17</b>
<b>This stadium offers a wide variety of beverages choices</b>	<b>2.14</b>	<b>1.94</b>	<b>2.13</b>	<b>2.67</b>	<b>2.29</b>
<b>This stadium offers good tasting food</b>	<b>2.03</b>	<b>1.97</b>	<b>2.03</b>	<b>2.00</b>	<b>2.02</b>
<b>This stadium offers fast service for beverages</b>	<b>1.98</b>	<b>1.75</b>	<b>1.86</b>	<b>2.17</b>	<b>2.55</b>
<b>This stadium offers healthy food options</b>	<b>1.83</b>	<b>1.76</b>	<b>1.83</b>	<b>1.60</b>	<b>1.86</b>
<b>This stadium offers a variety of ways to order and receive your food</b>	<b>1.76</b>	<b>1.66</b>	<b>1.71</b>	<b>2.60</b>	<b>1.88</b>
<b>This stadium offers a variety of ways to order and receive your beverages</b>	<b>1.75</b>	<b>1.55</b>	<b>1.68</b>	<b>2.40</b>	<b>2.05</b>
<b>This stadium offers reasonably priced beverages</b>	<b>1.70</b>	<b>1.43</b>	<b>1.72</b>	<b>2.67</b>	<b>1.81</b>
<b>This stadium offers reasonably priced food</b>	<b>1.66</b>	<b>1.43</b>	<b>1.64</b>	<b>2.20</b>	<b>1.90</b>
<b>Overall</b>	<b>1.89</b>	<b>1.74</b>	<b>1.85</b>	<b>2.28</b>	<b>2.06</b>

Author Version

Figure 1. Word Cloud of responses to the questions *What aspects of the stadium do you consider to be particularly negative?*



Author Version

**Figure 2. The Stadium Club at the Adelaide Oval**



Author version

**Figure 3. 'Food court' style food area in SCG Northern Stand**



Author Version

**Figure 4. Microbrewery in SCG Northern Stand**



Author version

Figure 5. Food court at Westfield Miranda, Sydney



## Appendix 1. Full Survey Scales

<b>Getting to and Around the stadium</b>
The stadium is well served by public transport
Local roads make it easy to get to this stadium
This stadium has ample parking
Stadium parking is easy to get out of after the game
Stadium parking is conveniently located
Signs at this stadium help you know where you are going
Signs at this stadium give clear directions of where things are located
The stadium layout makes it easy to get to your seat
The stadium layout makes it easy to get to the restrooms or food and beverage outlets
<b>Stadium Aesthetics</b>
This stadium is painted in attractive colours
This stadium's architecture gives it an attractive character
This is an attractive stadium
This stadium is well maintained
This stadium is modern
There is plenty of legroom in the seating area
There is plenty of elbowroom in this seating area
This stadium provides comfortable seats
The arrangement of seats provides plenty of space
<b>Entertainment</b>
Pregame shows/entertainment added to your experience at this stadium
Interval/halftime shows/entertainment added to your experience at this stadium
Postgame shows/entertainment added to your experience at this stadium
During game shows/entertainment added to your experience at this stadium
Shows/entertainment at this stadium provide a suitable degree of interactivity
<b>Screens and Scoreboards</b>
The screens/scoreboards are entertaining to watch
The screens/scoreboards add excitement to the game
This stadium provides interesting statistics/information
This stadium has high quality screens/scoreboards
The screens/scoreboards are conveniently located
You rely on the screens/scoreboards to watch the game
<b>Seating</b>
The whole playing area is easily visible from your preferred seating location
Your view is not obstructed from your preferred seating location
When the ball is in the air your view of it is not obscured from your preferred seating location
You are protected from the elements in your preferred seating location
Your preferred seating location is close enough to the playing field



The sound quality is good in your preferred seating location
<b>At the stadium (Topophilia)</b>
You enjoy spending time at this stadium
You like to stay at this stadium for as long as possible
You like to stay for the whole game
You are able to access the internet via your mobile phone or other devices at this stadium
You have a good phone signal at this stadium
You are able to access social media sites such as Twitter and Facebook at This stadium
You feel at home at this stadium
The journey to this stadium has special meaning for you
You know your way around this stadium
<b>Food and Beverage</b>
This stadium offers a wide variety of food choices
This stadium offers good tasting food
This stadium offers healthy food options
This stadium offers reasonably priced food
This stadium offers a variety of ways to order and receive your food
This stadium offers a wide variety of drinks choices
This stadium offers reasonably priced drinks
This stadium offers fast service for drinks
This stadium offers a variety of ways to order and receive your drinks
<b>Stadium Management</b>
This stadium maintains clean restrooms
This stadium maintains clean food and beverage areas
This stadium maintains clear walkways and exits
This stadium makes certain that offensive fans are controlled
This stadium monitors abusive fans
This stadium is concerned about controlling abusive fans
Queues for toilets at this stadium are acceptable
Queues for food and drinks at this stadium are acceptable
It is easy to enter this stadium
It is easy to leave this stadium

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# Author Version