

The community impact of football pitches: a case study of Maidstone United FC

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ABSTRACT

The use of third-generation artificial grass pitches (AGPs) is growing in English semi-professional football. As usage grows, research into the impact of AGPs is needed, in order to examine the potential impact of such surfaces for a football club and local community. This article analyses the experiences of National League South club Maidstone United through a detailed case study. The club have installed an AGP at their stadium and are able to utilize it for up to 80 hours a week. All the club's 45 teams are able to train and play on the AGP, and other local sport clubs have hired it, arguably increasing Public Health opportunities. This means that youth teams, first team club players and community participants alike have access to a high-quality playing surface. This has raised the club's profile in the local community and increased income generation, supporting the financial sustainability of the club.

Introduction

The use of third generation Artificial Grass Pitches (AGPs) for competitive football matches and training has become increasingly common over the last decade. This is particularly the case in Western Europe and Scandinavia, where pitches can be adversely affected by weather conditions and regular use (up to three matches per week) and clubs have looked for an alternative to natural surfaces. Football clubs have chosen to install AGPs at their training facilities and stadia because they are durable and usable in extreme meteorological conditions, as discussed by Andersson, Ekblom, and Krusturp (2008), Bjerneboe, Bahr, and Andersen (2010) and Almutawa et al. (2014). Very little is known about the potential impact of investment in AGP developments on the operations of a football club. This research seeks to explore the impact of investment in AGP facilities in football clubs settings, focusing on the financial health of a football club and the health of its surrounding local community.

Existing studies into the use of AGPs have tended to examine the perception that their use brings additional risks in terms of injury to players. One reason for this perception is the fact that first and second generation AGPs were sometimes unsuitable for football, and did bring risks to players in addition to the normal issues associated with playing a high intensity contact sport (Williams, Hume, and Kara 2011). However, the development of 'football turf' AGPs and the need to meet minimum standards set by FIFA and the Football Association has been aimed at reducing the risk of injury (Almutawa et al. 2014). Recent studies (Almutawa et al. 2014; Andersson, Ekblom, and Krusturp 2008; Bjerneboe, Bahr, and Andersen 2010; Kristenson et al. 2016; Soligard, Bahr, and Andersen 2010) have found no increased risk of injury when newer AGPs are compared to natural grass. In addition to examinations of the risk of injury associated with AGPs, recent mainstream press reports in the United Kingdom have also linked the regular use of AGPs that use rubber crumb infill with an increased risk of cancer, because the recycled car tyres that are often used to make rubber crumb infill have been reported to contain potentially harmful carcinogens (Daily Telegraph, February 17,

2016). At the time of writing a correlation between rubber crumb infill and cancer has not been definitively proven and the Football Association (18 February 2016) have concluded that '3G pitches in the UK, which are built to industry-standard specifications, are safe'.¹ The Rugby Football Union, England Hockey and the Football Foundation have all come to the same conclusions based on available research. Should any study conclusively prove a significant risk to health presented by AGPs, the approach of these governing bodies may change but at the time of writing the use of AGPs is supported by governing bodies in the United Kingdom based on scientific research that they deem reliable.

This is significant because the use of AGPs has grown exponentially over the last decade, and as such it is important to consider reasons for the high level of (planned and future) strategic investment into AGPs across the United Kingdom (UK). In order to further examine this growth, it is worth exploring the role of the Football Foundation. The Football Foundation is the UK's largest sport charity and was founded by the Premier League, The FA (Football Association) and the British Government in 2000. The main goal was to improve grassroots facilities and to get more people playing football (Martin et al. 2016). In the last 15 years the Football Foundation has awarded grants in excess of £513m and multiplied their Funding Partners' investment by attracting an additional £730m in partnership funding, which means more than £1.2bn has been invested. This investment includes refurbishment of existing facilities and developing new ones, increasing participation opportunities and supporting player retention (Martin et al. 2016).

The Football Foundation investments were made within local community facilities, in partnership with local authorities and football clubs. Despite this, the findings offer some noteworthy considerations for investment by football clubs. The Centre for Economics and Business Research (Cebr) (2013) report claimed that every pound spent on grass roots facilities generated £2.53 for the UK economy. Such positive figures offer (commercial and Government) investors serious positivity. Despite the current economic climate, and the resultant funding cuts to sport and leisure (Parnell, Millward, and Spracklen 2014) the report found investment by the Football Foundation into the development of community-based AGP facilities, not only offered positive returns for GDP (Gross Domestic Product), but also boosted employment and impacted local communities (Cebr 2013). Further, the report outlined benefits for local people including voluntary experience and qualifications, whilst also highlighting the potential multiplier consequences of such investment (Cebr 2013). However, looking beyond this hard financial return, it is pertinent to consider the softer and longer term opportunities a facility can offer. These include improved health and well-being (through the links between increased participation and physical activity), which could contribute to longer term positive impacts for Public Health.

In 2015, Sport England Active People's Survey evidenced continued declining participation across the nation. Clive Efford, the shadow Sports Minister for Sport at the time commented, 'It's a disaster. It's showing government cuts are having a major impact on facilities and participation. The last coalition government set about destroying everything that had been put in place to make the most of the legacy' (Gibson 2015). Interestingly, others have made the link between facility closure, austerity and participation (Parnell, Millward, and Spracklen 2014), especially due to the plummeting rates of participation in swimming (Gibson 2015). A report commissioned by the Football Foundation found

that their investment in AGPs in local urban areas, yielded a 17.3% increase in participation (Burdsey 2011). It seems clear that investment in facilities is an important factor in participation.

At the time of the report, the Football Foundation had reached 275,000 participants (a figure that has grown year-on-year). Moreover, in a special issue on Football and Health Improvement (Parnell and Pringle 2016) the Football Foundation reported that participants were asked to score out of five (with five being the most certain) on the question of whether they felt their health had improved as a result of playing on an AGP. Eighty-six per cent of 274 players questioned gave an answer of between three and five. This is a strong indication that they felt AGPs were contributing positively to their well-being (Martin et al. 2016).

In the light of the potential benefits of investment in AGPs, it appears timely to look closely at the role such investments can play within football stadia. This article appears in a collection entitled 'Healthy Stadia: from policy to practice'. As previous research has looked at the physical health of professional or semi-professional players, it is useful to look at the impact of AGPs. The particular aspects examined are the impact of AGPs on the financial health and sustainability of football clubs (including providing a source of revenue outside of matchdays), whether one dual youth and first team facility supports talent development. Further we intend to build on the existing research (Drygas et al. 2011) to explore whether an AGP at a sports club can provide regular football participation opportunities for their local community and support Public Health objectives.

Methodology

This article analyses ways in which the installation of an AGP can boost revenue and improve football clubs' community engagement and participation, using a detailed case study from the English non-league system. Existing academic research on the revenue potential, club and community/Public Health value of AGPs is limited, and therefore it is not possible to utilize an existing body of work on the exact topic discussed. This article adds a new strand to existing knowledge, whilst offering unique findings for those working within football and in some cases sports stadia. Moreover, research into AGPs does not include an English football club case study. Given the significance of English football within the global game, a case study examining the experiences of an English club adds an important layer to existing knowledge.

In England, AGPs are only currently used by non-league clubs, rather than football league clubs and so the club used for the case study has been selected on that basis. However, while the national context chosen adds to knowledge of football within that nation, the findings also have a potential transnational significance. AGPs are used by professional clubs across Europe and the findings in this article are applicable not just to semi-professional clubs in England, but to any football club that has an interest in exploring the possibility of maximizing their playing surface for a range of objectives from talent development, financial gain and/or community engagement.

The club chosen for this case study are one of the first in England to install an AGP, Maidstone United. In many ways, the club were pioneers of AGPs in England and were only the second to install

an AGP (Sutton Coldfield Town were the first). After a period of over 20 years playing outside Maidstone at stadia including Dartford's Watling Street and Sittingbourne's Bourne Park, the club moved into the newly built Gallagher Stadium in 2012. The club's co-owner Oliver Ash is the head of 3G4US, a group of professional and semi-professional clubs, which aims to promote the benefits of using surfaces within training facilities and stadia. This group operates a website at www.3g4us.org which archives stories about pitches (both positive and negative). It also takes an active role in promoting the use of surfaces by offering consultancy and advice to clubs considering a switch to an artificial pitch (see Figure 1).

Data for this article were gathered using Maidstone United's own website, 3G4US's archive of news articles about AGPs, and through a detailed interview with Oliver Ash conducted by the lead first author on 27 April 2015. Details given by Mr Ash have been checked against available material and corroborated independently. Observation of matches played at the Gallagher Stadium was also carried out in order to independently ascertain the depth of community engagement in Maidstone United. The first author attended a number of matches at the stadium from 2012 to 2015 and has first-hand knowledge of the size and nature of the club's support (see Figure 2).



Figure 1. The AGP (non-matchday) at the Gallagher Stadium, the home ground of Maidstone United.



Figure 2. The AGP (matchday) at the Gallagher Stadium, the home ground of Maidstone United.

Context: the use of AGP surfaces in England

No full-time professional clubs in the English league system have installed an AGP. This is because they are currently banned for use in the Football League and Premier League. This means that clubs in the National League with ambitions to get promoted into the Football League have not installed AGPs either. English football represents an anomaly in its ban on artificial surfaces in full-time professional football, even within the UK. Scottish Premier League teams Kilmarnock and Hamilton Academical have installed an artificial surface, as have Scottish Championship clubs Queen of the South and Alloa Athletic. Welsh Premier League champions The New Saints also play on an AGP.

It is also the case that other professional sports in England allow the use of AGP. St Georges Park is the FA's new flagship facility, and hosts a number of AGP for their elite youth, men's and women's teams. Additionally, the English FA, the English Premier League are also strategically committed to the development of an AGP infrastructure across England through funding investment. Moreover, AGP are commonplace (and indeed expected), in Football League and Premier League elite training, youth academy facilities and a growing number of community facilities (for example, Norwich FC and Arsenal FC). Interestingly, Rugby Union's Saracens and Super League team Widnes both play on AGPs, despite the fact that both codes of rugby are high impact sports with regular heavy collisions.

A vote held in November 2014 by member clubs of the Football League on allowing AGPs was tied, with 34 clubs voting in favour, 34 voting for a continuation of the existing ban and 4 abstentions (The Guardian, 6th November 2014). The Professional Footballers Association (PFA) had lobbied for the ban to be upheld because many of its members feared 'they couldn't play' on artificial surfaces without risking long-term health problems (BBC Sport, 6th November 2014). The PFA's support for the ban was based on a survey taken two years before the vote itself (The PFA 2012). One anonymous respondent to the survey crystallized the reasons for opposition to AGPs in his profession, saying:

I answered no to playing matches on artificial surfaces as I feel that it would not be a good idea for most players from about the age of 25 onwards. Once you get to mid- twenties and you have played lots of football you start to feel the effects on your joints. I really think that artificial surfaces would reduce the number of 30+ professional footballers. (The PFA 2012) Despite significant research indicating the contrary, the report also states that 'many players believe if they had to play on artificial turf on a regular basis then their careers would be curtailed by a number of years' (The PFA 2012).

The antipathy of some players and clubs towards AGPs does not appear to extend to the English FA whose vision for the next five years of football development involves investment in up to 600 pitches in 30 cities across England. In 2014, there were 639 publicly available AGPs in England, as compared to 3735 in the World Cup winning nation, Germany (The Guardian, 10th October 2014). Natural grass pitches degrade more quickly, and are often of poor quality or unavailable in winter and spring due to the effect of unfavourable weather conditions. The FA's estimate is that they are typically available for only five hours per week as opposed to the 70–80 h of availability for an AGP.

Given the lack of availability and poor condition of natural grass surfaces it should come as no surprise that football participation is suffering. In the Active People Survey 9, the largest survey of sport and active recreation ever carried out in Europe (since 2005/6 to 2014/5), football presented further declines in participation. The number of 16+ and 16–25-year-olds playing 1 × 30 mins of moderate football has declined in 2014/2015 in comparison to the first survey undertaken (2005/6). In 2014, as a result of failing to reverse the participation decline, the FA were dealt a £1.6m cut from the £30million four-year investment from Sport England. At the time, poor weather conditions, facilities and increased costs for clubs and the end-user (i.e. players) were attributed as factors influencing this decline (Parnell and Widdop 2015). The FA believe that this reduced playing time is leading to English players being technically poorer than counterparts in Europe, because pitches are both of low quality and available for less time than artificial surfaces (The Guardian, 10th October 2014).

Given this situation, the continued ban on AGP in the Football League and Premier League seems contrary to the aims of the FA regarding increased participation through the development of AGPs. Indeed, the FA have made a recent commitment to investment in AGPs and it appears that the Premier League will continue to commit part of their grassroots investments to these facilities (The Guardian, 12 August 2015). To invest heavily in AGPs for recreational use but not allow them for use at a higher level would indicate muddled thinking in the English game, especially as the ban on AGPs does not extend to the FA Cup which Football League teams compete within; indeed, the subject of

the case study in this article, Maidstone United, beat Football League club Stevenage in this competition during the 2014/15 season.

It is also the case that AGPs are allowed within semi-professional football. Going as far down as level eight of the English football pyramid (the Isthmian, Northern and Southern Leagues), there are currently 11 clubs within the non-league system in England that have installed an AGP. This figure has risen from just two in 2012. There are also a further 12 AGPs in use at level nine (County League level). This figure is low compared to the number of clubs who use AGPs in continental Europe, but the relatively rapid growth in use at levels eight, seven and six of the English football pyramid is worthy of investigation. As the following case study demonstrates, there are important factors both on and off-field that have influenced the decision of clubs to install AGPs.

Case study: Maidstone United

At present, Maidstone United does not play in the Football League. However, they are a club whose size and significance is appropriate for a meaningful case study. It is not possible to assess the impact of an AGP on revenue and community engagement in full-time professional football in England, but Maidstone provides a useful case study with findings applicable to small- and medium-sized football clubs. With regular attendances of over 1800, a full-time manager and professional coaching staff, plus 45 teams competing under its auspices, Maidstone has a similar profile to many clubs competing in Football League Division Two. The club also has a similar profile to most full-time professional clubs competing in the National League for their community work.

Published articles on football and community programmes at Burton Albion FC helps make a comparison, as although the two clubs compete at different levels, the size of their support and level of community engagement is similar (Martin et al. 2016; Parnell and Pringle 2016; Parnell and Richardson 2014; Pringle et al. 2014). The outward facing community programmes attached to football clubs offer an interesting and varied context for further research. Authors have outlined the growing health potential of football-based community programmes (Parnell, Pringle, McKenna et al. 2015; Pringle et al. 2014). As such, this case study will make the assumption that offering and delivering increased participation will in turn facilitate positive physical activity opportunities and contribute positively towards the Public Health agenda (Bailey et al. 2013).

Maidstone has been promoted twice since 2012, and will play in the National League South (formerly Conference South) in 2015–2016. It would be difficult to make strong claims about the use of an AGP without selecting a club that shows evidence of community engagement, but the size of Maidstone United's support and its continual growth since 2012 helps to validate any claims made. In 2015, the club extended the capacity of their stadium to 3000, executing plans made following promotion to the Isthmian League Premier Division (Maidstone United FC, 18th March 2015). Overall, as one of the first and certainly the most prominent and well-supported club to use an AGP, Maidstone is ideal for a case study examining the potential benefits of AGPs both to clubs and the communities they are based within.

When Maidstone United decided to install an AGP, the club's owners were, as Oliver Ash (2015) put it during an interview with the first author, 'in the dark' about the possible community benefits. However, as the club does not possess separate training facilities, the AGP allowed the club to both train and play on the same surface, there was a clear benefit in terms of both space utilization and the efficiency savings in making need to invest in a training ground redundant. Ash (2015) confirmed that the surface that Maidstone installed can be used between 50 and 80 h per week without significant degradation in quality. This has allowed the club to set up a football academy whose players also use the surface during the week. There are 80 students at the academy (aged 16–18) who are studying for a BTEC Level 3 qualification in sport, and are also able to take an optional A Level in Maths. The academy teams play in the National League Youth Alliance. It is apparent that the academy not only contributes to support the talent development and performance objectives of the football club, but also supports community-oriented educational outputs.

The multi-purpose facility and strategic management deployed between the football club and the academy offers a coherent message across all operations. The academy is run by first-team manager Jay Saunders, who has playing experience at a higher level than Maidstone currently play at, and was attracted to the club by the possibility of working fulltime (Maidstone United FC 2015). Saunders is also able to assess the quality of academy graduates and promote them to first-team football if suitable.

Since moving to the Gallagher Stadium, the club have seen three academy graduates move into league football; these are Aaron Simpson (Wolverhampton Wanderers), Ben Swift (Aston Villa) and Alfie Pavey (Millwall). A number have also progressed to the club's first team, including midfielder Charley Robertson (Maidstone United FC 2015). Compared to other local clubs, Maidstone is at a significant advantage in terms of developing an academy because every player at the club has a high quality surface to train upon. The dual training facility offer an interesting context for those involved in talent development. Indeed, Relvas et al. (2010) have highlighted the importance of congruence between youth and first team training proximity, structures and culture for effective talent development.

The high quality playing facility attracts good players to the club, and in turn the academy squads become progressively stronger. Maidstone has been promoted twice in the last four seasons. They have also signed a number of players from higher levels – Jay May from Ebbsfleet United, Frannie Collin and Lee Worgan from Tonbridge Angels, Joe Healy from Welling United and Jack Parkinson from Woking have all been notable additions and well known within non-league football (Maidstone United 2015). In addition to the academy squad, the club has a further 45 teams. These are all able to train on the AGP. Maidstone has youth squads from under-16 to under-6 levels, and also has women and girls teams and a disability section. As Ash (2015) states, all of these squads bring in footballers from the local community and support from parents and family members. This in turn leads to increased awareness of the club in the community.

While it is certainly possible for clubs in non-league football to have as many squads as Maidstone does, only clubs with an AGP can have them all using one surface, interacting with each other and

developing a sense of belonging to one club. There is a clear advantage to an AGP in developing and maintaining a community around a non-league club. There are also community health benefits to having a facility like Maidstone's available. Young people are able to use a high quality facility to develop their football skills and also to take part in regular physical activity outside of a school setting, just as they do with clubs higher up the football pyramid (Martin et al. 2016).

When the club's 45 squads are not using the AGP, Maidstone is also able to rent out their facilities to local businesses and football teams during the evening. This brings in revenue from the cost of renting out catering facilities, the bar area, and of course the pitch. It also increases awareness of the club amongst businesses and local footballers. Ash (2015) said that 'the surface was the only way we could see of bringing the community into the club'. The local community are able to use the stadium late into the evening, a situation that not only increases possible revenue streams but also allows people to feel a part of the club. A community has developed around the shared use of the surface. Over 1000 people per week use Maidstone's AGP and other facilities (Interview with Oliver Ash 2015). Again, there are clear potential health benefits to facilitating regular physical activity on a high quality surface. A rise in participation is indeed what Sport England and other national governing bodies and the Football Foundation are in pursuit of (Lansley and Parnell 2015; Martin et al. 2016).

Installing an AGP required an outlay of £350,000. The surface itself cost £160,000, which Ash (2015) confirmed with the first author is the average price for a pitch that meets FIFA and The FA standards. Given that Maidstone was moving into a new stadium and had to pay costs for installing the base and drainage, and also making the ground ready for a football pitch, the cost was higher than it would be for a club installing a surface at an existing football stadium with drainage and infrastructure already in place. The stadium is entirely owned and managed by the football club and although Gallagher Construction has bought the naming rights until 2022, no third party owns any part of the stadium (Maidstone United FC 2015). This meant that the club bore all the costs of installing the surface. This is significant because Maidstone's owners had no alternative but to go with it if they wanted to pay off the costs of building the Gallagher Stadium.

Ash (2015) told the first author that it is hard to say definitively at this stage whether the cost of installing the surface has already been paid off. He did, however, confirm in his interview that Maidstone United runs at a profit, and is a sustainable business. He also confirmed that the club have experienced 'growth season upon season' and said that given the need for a significant outlay on the new stadium, the installation of the AGP surface was ultimately the 'only way for the club to survive'. The club have met their aim of bringing the local community into the stadium and the pitch that they have installed has played a significant part in that. In an environment where few clubs are able to make a profit, the health of Maidstone United as a business is comparatively good. While survival was the initial aim, the club have thrived both on and off field and as Ash (2015) confirms, the decision to install an AGP has played a key part in that.

The growing financial and footballing case for investment in an AGP is clear, yet the importance and potential impact of this facility to the community and the Public Health agenda may be the most

valuable. Due to the durability of the surface, clubs are able to use AGPs on a daily basis to widen their reach into the local community offering key participation and physical activity opportunities supporting Public Health outcomes. Maidstone has also been able to expand their youth, ladies and disability teams, considerably increasing the number of players directly involved in the club, and also increasing the number of people who become aware of it as a parent or supporter. This not only offers a positive contribution to Public Health, but also offers revenue and is a way of developing awareness of the club within the local community that it represents.

The level of participation within Maidstone United's grassroots and community-oriented activities is providing accessibility where there was previously none. The attractiveness of the football club has been proven as favourable to community participants (Parnell, Pringle, McKenna et al. 2015). The need for better quality playing facilities is a national and urgent issue (Parnell and Widdop 2015). Playing recreationally has proven health and social benefits (Krustrup and Bangsbo 2015; Parnell, Pringle, Widdop and Zwolinsky 2015). As such, Maidstone United FC is providing local, accessible, much needed, recreational football opportunities for its local community.

A settings-based approach to health promotion is based on the assumption that the more supportive social and physical environment is for healthy lifestyle choices makes for easier individual healthy decision-making (Whitelaw et al. 2001). Indeed, research has explored Healthy Schools (Clift and Jensen 2005), Healthy Cities (de Leeuw and Skovgaard 2005), Healthy Prisons (Whitehead 2006) and more recently Healthy Stadia (Drygas et al. 2011). Whilst sports stadia are often characterized with fast food and alcohol, opening up the playing surface via an AGP is associated with increased accessibility and participation for those sometimes considered hard-to-reach (Drygas et al. 2011). This research allows for a new understanding around the potential health promoting prospects of a football clubs through the introduction of an AGP. Not only does football plays an important role within society, but now football/sports stadia can provide a positive setting for Public Health strategies (Drygas et al. 2011). This is important for both investors and Public Health commissioners.

Further developments in the use of AGP surfaces

Ash's (2015) view is that growth in the use of artificial surfaces in English football is inevitable due to the off-field benefits that such pitches can bring, as exemplified by Maidstone United. As he puts it, 'other clubs have come to the same conclusion that Maidstone did', and they see the installation of an AGP as a positive route towards increasing community engagement for a multitude of reasons from increased revenue, talent development and health improvement. Ash (2015) also feels that clubs will 'begrudgingly accept' playing on artificial surfaces more often but there will be 'a lot of emotion and prejudice' against change. This was demonstrated by the reaction of then Stevenage manager Graham Westley to his club drawing Maidstone in the FA Cup. 'As a surface it doesn't work', he said. 'When you're playing on it players' safety is in jeopardy' (The Guardian 15th November 2014). Westley made these emotive comments despite the fact that Stevenage's first team squad trains on an AGP surface every day (Kent Sports News, 12th November 2014).

In an English context, community engagement is particularly important for semi-professional clubs whose revenue and turnover is often low, and whose visibility in the local and national media is

limited. Clubs playing below the Football League need to find innovative ways to attract new supporters and increase their revenue, and AGPs can be used for both of these purposes. Further, building on their ability to promote health in the local community may attract Public Health commissioners looking to invest in effective programmes. A key underlying principle for investment in an AGP will be the financial benefits. Sutton United are one of the clubs who have decided that installing an AGP is a good way to attract new supporters, with the club's manager Paul Doswell saying that one of the key benefits would be that all 28 of the club's junior teams would be able to train on the same surface as the first team. Doswell outlined, 'That's 28 sets of parents who maybe have never been to Gander Green Lane [Sutton's stadium]', adding 'they'll hopefully bring their child to training and think "maybe we'll come down on Saturday and check it out for a game"' (Non League Football Paper, 8th March 2015).

Doswell went on further to highlight the importance of expanding the accessibility of their operations, 'as a football club we need to be more than simply a one day a fortnight operation' (Non League Football Paper, 8th March 2015). He sees the introduction of an AGP as a method of ensuring that the club's stadium is used more regularly, bringing in greater revenue and raising the profile of the club in the local community. This has been the case for Maidstone United. Sutton are not alone in installing a new AGP; Oxford City FC of the National League North have also spent £300,000–£400,000 on a new pitch, which they argue will allow up to 40 local clubs the opportunity to play all year round on a high quality, FIFA rated surface (Oxford Mail, 10th April 2015). Lewes FC of the Isthmian League have also spent £850,000 on a new facility incorporating an AGP for community use, which opened in July 2015 (Sussex Express, 14th July 2015). There is a real opportunity to explore whether investment in these facilities can result in opposing the trend of declining participation in football.

These are just three examples of clubs following Maidstone's example; further down the football 'pyramid' in England there are also clubs planning to install an AGP, including Ashford United who play in the Southern Counties East League (Kent Online, 23rd April 2015), and Redditch United of the Southern Premier League (Redditch and Alcester Advertiser, 6th November 2014). The latter club are unable to fund the cost of installing the surface themselves and have launched a public appeal for help in developing a facility for the whole local community to use (Redditch and Alcester Advertiser, 6th November 2014). The principal barrier to the installation of an AGP surface is the cost and not every club in non-league football will be able raise £300,000 (as a minimum) to pay for a new surface. It is clear that amongst those who do have this spending power, however, an increasing number are choosing to install an AGP surface in the hope that, similarly to Maidstone United, the increased use of their pitch will boost their revenue, community engagement and fan base. Additionally, clubs are installing an AGP in the hope that this will increase participation and community reach and social impact (including Public Health), and in the process support talent identification and development, all of which will help build the case for investment.

Conclusions

There is very little research on the value of investment in AGPs within football clubs settings. Little is known on how AGPs can help contribute towards the financial health of a football club, through increased fan revenue and talent development. Further, little is known about the role of AGPs in

creating opportunities for increased participation and in turn their potential contribution to the Public Health agenda. As the case study of Maidstone United demonstrates, there are benefits to installing an AGP, which go beyond the on-field performance of the first team squad. Whilst more research is needed to fully understand the potential, there remains an interesting and reasonable opportunity for successful outcomes from a financial perspective through to a Public Health perspective.

From a performance perspective players from local clubs (both at youth and adult level) are able to use the surface and become familiar with the club structures and culture, which appears to be coherently and strategically managed. Furthermore, Maidstone has been able to rent out their facilities to businesses, football schools, the local authority, and other sports clubs and bring in revenue as a consequence. This means that the stadium and its pitch are not just used on matchdays, but are available to the local community as an accessible resource. This increases the 'health' of the club in terms of sustainability and provides a high quality surface for regular use by the local community.

A number of clubs in non-league football are now following Maidstone's example and the use of AGP surfaces looks set to increase in the English game. Sutton United, Lewes and Oxford City all installed new artificial surfaces during 2015 in a bid to increase their revenue and community engagement. The example set by Maidstone seems set to be followed by an increasing number of clubs who wish to have a sustainable financial future, and provide a high quality facility for use by the local community. Given this, it is apparent that the potential benefits of AGPs within football stadia needs to be examined in depth. Case studies such as the one in this article could offer a meaningful approach to capture this impact. Indeed, regular case studies to monitor the financial, talent development and Public Health potential of clubs who install AGPs would be recommended to further understand the impact of pitches.

Notes

1. Coverage of work in this area can be found in the work of Ruffino, Fiore, and Zanetti (2013). The work of Schilirò et al. (2013), Llompart et al. (2013) and Birkholz, Belton, and Guidotti (2003) may also be useful for those with an interest in the link discussed by the Daily Telegraph.
2. Research in this area continues to move forward. The authors of this article are in no position to argue that AGPs are definitively 'safe' – to do so is beyond their expertise and without total research consensus it is impossible to definitively make that argument in any case. The risks presented by inhalation or dermal exposure to rubber crumb infill seem likely to continue to be measured. The authors make no prediction about the direction this research will move in and suggest that this is an area that will require continual monitoring by governing bodies and other stakeholders.

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