

## Article

# Implementation of an Australian football themed men's health program in rural Australia: a mixed-methods study

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## Abstract

Rural men face a greater risk of ill-health than their urban counterparts but often lack access to appealing health programs. Aussie Fans in Training (Aussie-FIT) is an engaging men's health program delivered in urban professional sports contexts. This study examines the feasibility of implementing an adapted version of Aussie-FIT in rural Western Australia, focussing on the recruitment and retention of program coaches and participants. Men (aged 35–65) with overweight or obesity were recruited via Facebook, word of mouth, and local media for the 12-session Aussie-FIT program in 3 rural towns. Coaches were recruited via local stakeholder networks. A mixed-methods approach included process data relating to the number of coaches expressing interest and delivering programs, program reach, attendance registers, and five post-program participant focus groups (total  $n = 25$ ). Qualitative data exploring barriers and facilitators to engaging men were analysed using reflexive thematic analysis. Eighty-three of 124 men (67%) expressing interest enrolled, with most residing in low-to-middle socioeconomic areas ( $n = 77$ ; 96%) and not university educated ( $n = 60$ ; 74%). Half ( $n = 40$ ) were recruited via Facebook and a third by word of mouth. Average attendance was 8.2 of 12 sessions, with 57 (69%) completers. Retention varied by site (59–79%), partly due to Covid-19. An inclusive and supportive environment, the football theme and setting, and intragroup connectedness supported engagement. Findings suggest that it is feasible to implement Aussie-FIT in rural Western Australia without a professional club affiliation or setting, and that popular local sporting codes and community sports settings can be utilized to engage rural men in behavioural health programs.

**Keywords:** nutrition; physical activity; sport; men; rural; community-based intervention; health behaviour

## Contribution to Health Promotion

- Popular local sporting codes and community sports settings can be utilized to help engage rural men in health behaviour change intervention without a club affiliation.
- Stakeholder involvement should be sought early, additional time allowed to recruit participants and program facilitators compared with metropolitan-based programs, and Facebook and word of mouth integrated to recruit participants.
- A dedicated network of local stakeholder 'champions' may be essential for the sustainability of Aussie-FIT and similar programs in rural areas.
- Rural communities are distinct, and alternative or adapted approaches informed by local stakeholders and consumers may be required to meet the needs of diverse rural communities.

## BACKGROUND

Rural communities have higher rates of obesity, cardiovascular disease, type 2 diabetes, and high blood pressure than urban areas (O'Connor and Wellenius 2012, Alston et al. 2020, Australian Institute of Health and Welfare [AIHW],

2022). Obesity rates in Australia are highest in low socioeconomic rural communities (Calder 2019), where there has been a more pronounced decrease in physical activity (PA) from 2002 to 2017 compared to urban areas (Moreno-Llamas et al. 2021). Rural communities can face disadvantages

due to a lack of access to health facilities, resources, and services (AIHW 2022). Although behavioural weight management studies rarely report participant places of residence (i.e. urban, or rural) (Birch *et al.* 2022), there is some evidence to suggest that rural-specific weight management programs can be effective (Porter *et al.* 2019). However engaging men from rural and lower socioeconomic areas can be challenging (Ahern *et al.* 2016, Punt *et al.* 2020), and few studies specifically consider how best to engage this population (McDonald *et al.* 2022).

The construction and expression of masculine identities is influenced by social context and intersects with factors such as socioeconomic status, rurality, and cultural norms (Evans *et al.* 2011). Traditional perceptions of masculinity, such as a need to appear stoic, resilient, and strong, may be more prevalent in rural communities (Dolan 2011, Taylor Smith and Dumas 2019). Interventions associated with making dietary changes or losing weight are often viewed as female oriented (Sabinsky *et al.* 2007, Gough and Flanders 2009), and ostensibly counter to social ideals of masculinity (Elliott *et al.* 2020). The need to deliver interventions in settings that are congruent with masculine identities and the importance of trust and rapport for engaging men has been highlighted (Archibald *et al.* 2015, Osborne *et al.* 2016). A qualitative evidence synthesis identified that weight management interventions incorporating PA and social support are more likely to attract and retain men (Archibald *et al.* 2015), which may be of particular importance in rural areas.

One potential strategy to engage men in rural areas is to align health interventions with popular sporting codes. The Football Fans in Training (FFIT) program, established in Scotland and delivered in professional football (soccer) settings (Hunt *et al.* 2014), has inspired international adaptations including in Australia (Quested *et al.* 2018), Canada (Petrella *et al.* 2017), New Zealand (Maddison *et al.* 2020), and various European countries (Wyke *et al.* 2019). These programs involve weekly 90-minute sessions over 12 weeks, incorporating coach-led education, PA, and strategies to support positive behaviour changes (Hunt *et al.* 2020). ‘Fans in training’ programs have relied on sports fans’ affiliation to professional clubs and/or strong allegiance with the sport to help attract men, sustain their participation, and encourage engagement with health behaviour change educational content designed to support increased PA, dietary improvements, and weight loss. Typically, the program experience includes ‘behind the scenes’ access at their favourite club, a tour of the professional sporting venue, and a guest visit from a current or former player (Hunt *et al.* 2020).

Aussie Fans in Training (Aussie-FIT) is the Australian adaptation of FFIT and capitalizes on the appeal of Australian Football League (AFL) clubs to engage men in coach-led education and PA (Quested *et al.* 2018, Kwasnicka *et al.* 2020). Aussie-FIT embeds theoretical and evidence-based behaviour change strategies, fosters a fun and supportive environment for discussions around health, and aims to help men improve their health in the long term (Quested *et al.* 2018). Aussie-FIT is highly attractive to urban-residing men and has shown promise as a means to promote physical (e.g. weight), psychological (e.g. self-esteem), and behavioural (e.g. PA) health benefits in line with other ‘fans in training’ programs (Hunt *et al.* 2020, Kwasnicka *et al.* 2020, 2021).

Qualitative data from FFIT and Aussie-FIT studies highlight the importance participants place on being around men

they relate to, including their shared interest in a professional sports club (Hunt *et al.* 2014, Kwasnicka *et al.* 2021). In Scotland, the widespread geographical distribution of football clubs in the professional league has facilitated roll out of FFIT in association with 36 clubs across the country, including in small rural towns (Hunt *et al.* 2020). Australian professional sporting clubs tend to be in large cities. For example, Western Australia (WA) has two top-tier AFL clubs and ten semi-professional clubs in the tier below, all in the city of Perth or close surroundings. Although a recent systematic review highlighted the utility of using professional sports to engage men in behavioural health interventions, the authors noted that the reach of interventions to socioeconomically diverse populations was limited (George *et al.* 2022). Community sport plays an important role in rural areas, with local sports settings often acting as community hubs that support social connection and cohesion (Spaaij 2009). It is not known whether amateur Australian football settings located in lower socioeconomic rural areas can attract local men to take part in group health interventions.

Adapting evidence-based interventions (e.g. Aussie-FIT) and strategies (e.g. recruitment) to support implementation in new contexts is important to help address health inequalities where the unmodified intervention may otherwise be unable to reach specific subgroups (Bernal and Domenech Rodríguez 2012, Cabassa and Baumann 2013). Rural stakeholder focus groups informed adaptations to Aussie-FIT (e.g. program content, recruitment strategies, and marketing materials) to reach men in rural locations that lack professional Australian football club facilities (McDonald *et al.* 2023b). This study focussed on the potential viability of the adapted program, ‘rural Aussie-FIT’. It is unknown whether it is possible to recruit suitable candidates to run the Aussie-FIT program (‘coaches’) in rural areas, or whether rural Aussie-FIT can engage men in rural contexts, without professional sporting club affiliation or facilities.

The overarching research aim for this mixed-methods study was to assess the feasibility of delivering Aussie-FIT, adapted for rural areas, to men living with overweight and obesity in rural WA. The specific aims were to: (i) examine the feasibility of recruiting and retaining coaches to deliver rural Aussie-FIT; (ii) explore the feasibility of recruiting and retaining men living with overweight and obesity from rural towns in the adapted program and (iii) explore the barriers and facilitators to rural men’s engagement in Aussie-FIT.

## METHODS

### Research design

This study reports on mixed-methods (pre-post) data related to the implementation of Aussie-FIT in rural Australia. The study was approved by the Curtin University Human Research Ethics Committee (HRE2021-0217) and registered prospectively in the Australian New Zealand Clinical Trials Registry (ACTRN12621000763842).

### Deviation from trial registration

Flexibility with the original body mass index (BMI) inclusion criteria ( $\geq 28$  kg/m<sup>2</sup>) was adopted to include men with a BMI 25–27.9 kg/m<sup>2</sup> when spaces on scheduled programs were still available. An ethics amendment relating to this change was made during the recruitment period in the initial study site prior to the first programs commencing. This was

judged to be reasonable where men who could benefit from participating in rural Aussie-FIT in ways that are independent of weight status (e.g. increased PA, improved diet, and psychosocial outcomes) were interested. The community focus of the study and focus on implementation rather than effectiveness measures, lends itself towards inclusivity and pragmatism.

## Participants

Men aged 35–65 years with an objectively measured BMI of 28 kg/m<sup>2</sup> or higher were eligible. If spaces on scheduled programs were still available, men with a BMI 25–27.9 kg/m<sup>2</sup> could enrol. Men unavailable for four or more sessions of the scheduled 12-week program were excluded. In line with legal requirements during recruitment in Site 3, enrolling men were required to provide proof of Covid-19 vaccination status. The recruitment target was 90 participants, across three sites. Target Aussie-FIT coach characteristics included having a passion or interest in Australian Football, coaching experience, and an interest in helping men to improve their health. The recruitment target for coaches was six (two coaches per site).

## Settings

Table 1 provides an overview of the study site characteristics (Australian Bureau of Statistics [ABS], 2016, Calder 2019, AIHW 2022). Sites are classified as 'Inner Regional' or 'Outer Regional' (ABS 2016) and are located in low-to-middle socio-economic areas. Rural Aussie-FIT was delivered in amateur Australian Football settings. Local stakeholders helped facilitate introductions or encouragement to engage of those responsible for prospective host venues.

## Procedures

Stakeholder consultations informed the implementation of rural Aussie-FIT including potential host venues, participant and coach recruitment, marketing strategies, local delivery partners, and the overall program theme and content (McDon-

ald et al. 2023b). Stakeholders supported the research team to implement the program via their local networks and existing relationships when required.

## Coach recruitment and training

We designed a flyer with information about the coach role which was circulated by local stakeholders on social media and/or via email to local Australian football clubs, other sporting clubs, community groups, and health organizations. Stakeholders also made some targeted approaches to specific individuals they felt may have suited the role. Coach training predominantly followed the protocol adopted in previous Aussie-FIT programs (Quested et al. 2018). Training was interactive and covered the core content and skills to deliver the rural Aussie-FIT program (described below) and included opportunities for practice deliveries and feedback. In metropolitan areas, Aussie-FIT coach training was face-to-face. For rural areas, a hybrid model was sometimes used. Coaches were employed on a sessional basis including up to 15 hours for coach training and 3 hours for the preparation and delivery of each program session.

## Participant recruitment

The program was publicized via social (Facebook) and local (newspapers and radio) media, word of mouth, and physical and e-flyer distribution by local stakeholders and study staff. The Facebook 'smart audience' feature was used to target males aged 35–65 years within varying radiuses (e.g. 30 km) of the program location (depending on population density), and a matched interest in Australian football.

Program promotions encouraged men to express interest via a form hosted on the Aussie-FIT website or contact the study coordinator by phone, email, or text. The online form asked men to provide contact details and self-report eligibility information (i.e. age, gender, weight, and height). A researcher then phoned men to verbally check eligibility, provide program details, and schedule a baseline assessment appointment. During the screening call, men were asked to share information about the program with other men.

**Table 1.** Overview of site characteristics

Site	Remoteness classification	Approximate population	SEIFA-IRSD <sup>a</sup> (quintile)	Adult overweight (obesity) prevalence	Program venue
1	Inner regional	6500	1	67.7% (33.8%)	<ul style="list-style-type: none"> <li>Modern multisport facility (including indoor Basketball courts and swimming pool), with large indoor meeting rooms.</li> <li>Australian Football oval where both local amateur clubs play. No spectator seating area.</li> <li>Access facilitated by the local authority on-site staff.</li> </ul>
2	Outer regional	38 000	3	61.0% (27.7%)	<ul style="list-style-type: none"> <li>Australian Football only venue, with modern indoor facilities (e.g. meeting rooms)</li> <li>Australian Football oval where two local amateur clubs play, and with covered spectator seating area</li> <li>Aussie-FIT coaches were given an access card by the local authority.</li> </ul>
3	Inner regional	43 000	2	61.2% (29.0%)	<ul style="list-style-type: none"> <li>Australian Football only venue, with large indoor meeting space.</li> <li>Australian Football oval where one local amateur club plays, and with covered spectator seating area.</li> <li>Access facilitated by a representative of the local club.</li> </ul>

<sup>a</sup>Socio-Economic Indexes for Areas Index of Relative Socio-Economic Disadvantage (SEIFA-IRSD): Quintile 1 represents areas within the 20% most disadvantaged in Australia and 5 within the 20% least disadvantaged.

### Preprogram assessments

Men attended a baseline appointment at the program venue where they provided written informed consent. Participants completed a baseline questionnaire, and objective measures were taken by a trained researcher or Allied Health Professional (AHP). Local stakeholders helped identify and facilitate introductions to appropriate AHPs when required. Participants completed Stage 1 of the Exercise and Sport Science Australia (ESSA) pre-exercise screening tool (ESSA 2019), with the AHP providing tailored advice to participants. In some cases, participants were asked to consult with their GP prior to commencing rural Aussie-FIT.

### Rural Aussie-FIT program

Rural Aussie-FIT comprises 12 weekly 90-minute-long coached face-to-face group sessions delivered in local amateur Australian football club settings. Rural Aussie-FIT has an Australian football theme but is not affiliated with specific clubs. The sessions incorporate PA and workshop-style education sessions covering healthy eating and becoming more active and embed behaviour change techniques and motivational principles from self-determination theory (Ryan and Deci 2017). The within-session PA is not prescriptive and is tailored by the coaches to suit participants' capabilities. Details of the original Aussie-FIT program content (Quested et al. 2018) and adaptations for rural contexts (McDonald et al. 2023b) are reported elsewhere. The time of year that programs ran differed across sites to align with local stakeholder recommendations where possible (McDonald et al. 2023b). In Site 1 rural Aussie-FIT ran from June to September 2021 avoiding seeding and harvest farming seasons. In Site 2 the program ran from September to December 2021 to avoid the winter months. Site 3 programs ran from March to June 2022 when the WA state borders had opened (3 March 2022) and community transmission of Covid-19 was increasing. In line with state legislation at the time Site 3 participants were required to provide proof of Covid-19 double vaccination status.

### Data collection and outcome measures

Table 2 provides a summary of data collection measures and outcomes. Participant baseline characteristics are reported as means with standard deviations for continuous variables and numbers with percentages for categorical variables.

### Post-program assessments

Participants attending Session 12 completed a post-program evaluation form and were invited to a post-program focus group. Noncompleters were emailed a short withdrawal survey after the program finished. Participants were provided with a \$20 voucher as a thank you for participation in each assessment activity.

### Focus groups

Five post-program focus groups ( $n = 25$  participants; mean duration = 60.5 minutes) were undertaken to provide insight into the barriers and facilitators to recruitment, engagement, and retention in the program. Two small focus groups were undertaken in Site 1 (FG1,  $n = 3$ ; FG2,  $n = 4$ ) and Site 2 (FG1,  $n = 5$ ; FG2,  $n = 2$ ), and one large focus group in Site 3 (FG1,  $n = 11$ ). Characteristics of focus group participants ( $n = 25$ ) were comparable to the overall sample. Focus groups are referenced by the site (i.e. 1, 2, or 3) and focus group number (i.e. 1 or 2) in the Results section.

### Qualitative data analysis

We undertook a reflexive thematic analysis (34), drawing on the primary authors' experience, knowledge, and subjectivity. M.M. (who facilitated four of the five focus groups and led the data analysis) is Scottish, has lived in Perth (WA) since 2019, and has not resided in rural Australian towns. He has learned about Australian football through his involvement in this project. M.M. worked in disadvantaged areas of Scotland on community-based health promotion and men's health research projects and is an advocate for

**Table 2.** Summary of measures

Outcome	Measures
Coach recruitment	Number of expressions of interest in the coach roles, suitability of the candidates, and length of time to recruit two coaches in each site.
Coach retention	Number and proportion of rural Aussie-FIT coaches that deliver one full program of 12 sessions and number and proportion of coaches that indicate willingness to deliver future programs.
Participant recruitment and program reach	Number of participants recruited, and time between initial and final expressions of interest by site prior to scheduled program start dates. The baseline questionnaire included questions related to recruitment sources, and reasons for participation ('How important were each of the following in your decision to participate', Likert scale 1–7). Facebook promotion data (e.g. reach and number of impressions) were summed and reported by site. Cost-per-recruit via Facebook was determined based on participants self-reported recruitment source and money spent on Facebook promotions.
Program engagement and retention	Program coaches recorded attendance for program engagement (i.e. mean sessions attended) and retention (i.e. N attending the penultimate or final session). The post-program evaluation asked participants to indicate the extent to which they agreed with a series of statements (Likert scale 1–7) to gauge satisfaction with the Aussie-FIT program (e.g. 'I enjoyed the Aussie-FIT program') and reasons for missing sessions (e.g. 'I did not enjoy the program'). Free-text questions asked participants how men could best be encouraged to attend regularly. The withdrawal survey included withdrawal reasons, and questions mirroring the evaluation form for completers (e.g. program satisfaction and program suggestions).
Barriers and facilitators to recruitment, engagement, and retention	Post-program focus groups.



interventions and policy change that aim to reduce health inequalities.

The analysis was undertaken iteratively and guided by the six phases of reflexive thematic analysis: (i) familiarization and writing familiarization notes, (ii) coding, (iii) generating initial themes, (iv) developing and reviewing themes, (v) refining, defining, and naming themes, and (vi) writing up (Braun and Clarke 2019). A reflexive and interpretive approach was undertaken, situating the researcher's subjectivity centrally in the analysis process (Braun and Clarke 2021). The analysis was framed within a relativist paradigm. Free-text data from the withdrawal survey and post-program participant evaluation form were included alongside the focus group data in the analysis.

In line with Braun and Clarke's approach, themes in this paper are conceptualized as patterns of shared meaning around a central concept (Braun and Clarke 2019), whereby constructed themes can relate to one or multiple parts of the research aims (e.g. recruitment and/or retention). Aligned with recommendations for evaluations of health promotion interventions in sports settings (Lim et al. 2023), throughout the analysis, the primary author attempted to understand (and where relevant report) which circumstances or contextual factors may present as a facilitator for some men, whilst concurrently having the potential to be a barrier to other men. Equally, attempts were made to acknowledge where factors could have the potential to present as a facilitator at one stage of the intervention (e.g. during recruitment), but the same or similar factors could present as a barrier at a later stage (e.g. retention), or vice-versa. M.M. consulted with E.Q. throughout the analysis and writing up. Given the limited

evidence base for programs in rural contexts (compared to urban-based programs), the primary author attempted to prioritize factors that might be considered 'rural-specific'. However, it should be acknowledged that the discussion of barriers and facilitators, includes factors that could be relevant for 'Fans in Training' style programs delivered in urban contexts.

## RESULTS

### Coach recruitment

There were three expressions of interest in the coach role in Site 1, three in Site 2, and two in Site 3. Coach recruitment took between 2 and 3 months in each site. One coach had extensive experience in coaching Australian football and strong links with a local club. Another played for a local Australian football master's club and was undertaking sports coaching qualifications. Two coaches played for the same local Australian football team and had a keen interest but more limited coaching experience in the sport. Two coaches did not have direct links with local Australian football clubs: one had a keen interest in Australian Football and community sports, and the other had broader sporting interests and was an experienced coach in other sports.

### Coach retention

All recruited coaches delivered one full 12-week rural Aussie-FIT program. Coaches in the same site provided occasional cover for each other's groups if required. Four of the six coaches indicated they were willing and available to facilitate the program in the future.

**Table 3.** Rural Aussie-FIT recruitment and reach

Aussie-FIT Facebook Page Promotion <sup>a</sup>		Site 1	Site 2	Site 3	Total
Posts	<i>n</i>	1	2	3	6
Dollars (AUD) paid to boost posts (with GST)	\$	6.60	118.80	265.10	390.50
Paid reach	<i>n</i>	419	5148	9251	14 818
Organic reach	<i>n</i>	1772	5079	8200	15 051
Engagements	<i>n</i>	40	150	233	395
Cost per engagement	\$	0.17	0.79	1.14	0.99
Cost per participant <i>first</i> hearing about the program via Facebook	\$	0.83	7.43	16.57	9.76
Recruitment metrics					
Expressions of interest	<i>n</i>	34	40	50	124
Attended baseline and commenced rural Aussie-FIT	<i>n</i>	29	27	27	83
Participation rate <sup>b</sup>	%	85.3	67.5	54.0	67.0
The <i>first</i> source where participants saw or heard about rural Aussie-FIT (recruitment source)					
Facebook	<i>n</i>	8	16	16	40
Word of mouth (e.g. other men, partner, Aussie-FIT coach)	<i>n</i>	19	4	7	30
Local newspaper	<i>n</i>	0	6	1	7
Local football club	<i>n</i>	2	0	1	3
Other	<i>n</i>	0	0	1	1
Total number of sources where participants saw or heard about rural Aussie-FIT					
One source	<i>n</i>	11	12	20	43
Two or more sources	<i>n</i>	18	14	6	38

<sup>a</sup>Reach: The estimated number of people who saw the content at least once. Engagements: The number of people that reacted, commented, or shared a post.

<sup>b</sup>Participation rate: The proportion of individuals expressing interest that commenced rural Aussie-FIT. Two participants (one in Site 2 and one in Site 3) did not complete the self-report baseline questionnaire.

**Table 4.** Rural Aussie-FIT attendance and retention

		Site 1 ( <i>n</i> = 29)	Site 2 ( <i>n</i> = 27)	Site 3 ( <i>n</i> = 27)	Total ( <i>n</i> = 83)
Number of sessions attended by enrolled participants	<i>m</i> (range)	8.3 (2–12)	8.3 (1–12)	7.9 (1–12)	8.2 (1–12)
Completers <sup>a</sup>	<i>n</i> (%)	23 (79.3)	18 (64.3)	16 (59.3)	57 (68.7)
Non-completers	<i>n</i> (%)	6 (20.7)	9 (33.3)	11 (40.7)	26 (31.3)
Sessions attended					
<6	<i>n</i> (%)	6 (20.7)	6 (22.2)	5 (18.5)	17 (20.5)
6–7	<i>n</i> (%)	1 (3.4)	0 (0)	5 (18.5)	6 (7.3)
8–9	<i>n</i> (%)	10 (34.5)	8 (29.6)	6 (22.2)	24 (28.9)
10–12	<i>n</i> (%)	12 (41.4)	13 (48.1)	11 (40.7)	36 (43.4)

<sup>a</sup>Completers: Participants that attended Session 11 and/or Session 12 were classified as completers (i.e. attended one of the final two program sessions).

### Participant recruitment and reach

Table 3 summarizes rural Aussie-FIT recruitment and reach. One hundred and twenty-four men expressed interest in taking part, of which 83 commenced the program. Two programs were delivered in each site. The number of participants starting each program varied from 13 to 15. Time between initial and final expressions of interest was 36 days (Site 1), 30 days (Site 2), and 82 days (Site 3). Initial expressions of interest in Site 3 were received 5 weeks prior to program promotion after some men heard about the program from a program coach in advance. In Site 3, at least two men expressing interest were ineligible to participate as they had not had a Covid-19 vaccination, with several other informal enquiries made by unvaccinated individuals.

Half of the participants (*n* = 40) first heard about rural Aussie-FIT via Facebook, over a third via word-of-mouth sources, and seven (8.6%) from newspaper articles. Cost-per-recruit via Facebook was lowest in Site 1 (\$0.83) due to local authority page promotions (with 4700 followers) being posted free of charge, and highest in Site 3 (\$16.57) due to a greater reliance on paid Facebook promotions for recruitment. The latter is evidenced by the fact that most recruited men in Site 3 (*n* = 16; 62%) first heard about the program via Facebook, and fewer (*n* = 6) participants reported hearing about rural Aussie-FIT via multiple sources compared with the other sites. On average, participants rated improving their health (i.e. physical health—6.6/7, losing weight—6.5/7, and mental health—5.6/7) and health behaviours (i.e. getting active—6.3/7, and improving diet—5.7/7) as the most important reasons for their enrolment. The ‘footy’ program theme (50/81; 61.7%) and group-social environment (45/81; 55.6%) were also rated as important (≥5 out of 7) for enrolment by most. The program being free of charge was rated as important by a third of participants. Detailed descriptions of recruitment and reach by site are published elsewhere (McDonald 2023).

### Baseline characteristics

Rural Aussie-FIT participants had an average of 12.0 (SD 3.1) years of education and a mean age of 48.4 (SD 9.6) years. Most were residents in low-to-middle socioeconomic areas (SEIFA-IRSD Quintiles 1–3, 96.3%), not university educated (*n* = 60; 74.1%), and in paid employment or self-employed (*n* = 71, 87.7%). Most participants were Caucasian (*n* = 73, 90.1%), and five men identified as Aboriginal (6.2%). At baseline, the mean weight (*M* = 109.0, *SD* = 18.6 kg), waist

circumference (*M* = 117.5, *SD* = 13.0 cm), blood pressure (*M* = 141.4/90.9, *SD* = 9.3/14.8 mm/Hg), and BMI (*M* = 34.1, *SD* = 5.3 kg/m<sup>2</sup>) of participants were elevated.

### Program attendance and retention

Attendance and retention rates are reported in Table 4. Only 5 of the 26 men who withdrew from the program completed the withdrawal survey, and thus insufficient data were available to meaningfully report response scores. Three (of the five) participants who completed the withdrawal survey were ‘satisfied’ or ‘extremely satisfied’ with the program and withdrew due to personal commitments. Program attendance and withdrawal numbers in Site 3 were affected by community transmission of Covid-19 in WA. Reasons for missed sessions were not always provided, so the exact number of sessions missed and withdrawals specifically due to Covid-19 was difficult to verify. From coach reports in Site 3, at least three participants missed two sessions due to Covid-19, and another missed one session. One of these participants was classified as a ‘non-completer’ as he missed the final two sessions.

### Barriers and facilitators to recruitment, engagement, and retention

Three overarching themes were generated that provide insights into the barriers and facilitators to recruiting, engaging, and retaining men in rural Aussie-FIT: (i) stereotypes and rural men, (ii) inclusive and stigma-free, and (iii) connection and community.

#### Stereotypes and rural men

Many participants expressed their love for football, and how the sporting theme was viewed by them as an attractive feature of the program. The fact that rural Aussie-FIT was not affiliated with high-profile AFL clubs or delivered in professional sports settings did not dissuade these football enthusiasts many of whom ‘grew up Aussie Rules’.

*‘I’m a football tragic, so I saw a Burley or a Sherrin [well known football manufacturers] and I was in’.* (Site 2, Focus Group 1)

*‘It (football) was the big appeal to get me moving, and that got us here...’.* (Site 3, Focus Group 1)

The participant quoted above appears to represent the group when he asserts that football 'got us here', suggesting that the football program theme was crucial in attracting rural men and this aligns with the rating of this as relatively important overall (mean importance 4.8/7, 1-7) in men's decision to enrol. Some post-program rural Aussie-FIT evaluation responses advocated for 'More ball sports, not just Aussie Rules'. The following quotes illustrate the diversity of footballing interests and experience, with common ground often established around health aspirations, rather than football or club allegiances.

*'...for me it was more about fitness and less about weight loss. I got more weight loss than I got fitness from that perspective, but I don't play football. It's good to have a kick of the footy and show them why I don't play football'.*

(Site 1, Focus Group 2)

*'I'm actually not a fan of football, so I was looking for something social to keep me exercising and losing weight'.*

(Site 3, Focus Group 1)

Countering common stereotypes centred on rural men's stoicism and reluctance to act on their health, participants consistently rated improving their health (e.g. physical, mean = 6.6/7) and health behaviours (e.g. getting active, mean = 6.3/7) as being most important in their decision to participate. Most participants also rated improving their mental health (58.0%, 6-7/7) as an important enrolment reason, and mental health was openly discussed in focus groups. Men expressed feeling safe during the program knowing that they would not be judged for revealing challenges with mental health and that the anticipated response from others would be one of support and understanding rather than critique or ridicule (i.e. psychological safety).

*P1: most people were comfortable with – I mean, I guess sometimes they wouldn't come right out and say it, but there's a couple of them here, that you know that they're having issues with like depression and stuff like that. And you can tell, and they mention little bits here and there.*

*P2: Yeah, I've had issues with that for years.*

*P1: And me too, yeah.* (Site 2, Focus Group 2)

### Inclusive and stigma-free

Preprogram, a fifth of participants rated the rural Aussie-FIT program being free of charge as important in their decision to participate. The combination of being 'free' and 'football-based' was compelling for some.

*'my missus saw it on Facebook, and just said, "Oh, this'd be good for you, because you like football." And I went, "Oh beauty," and it's free. So, I said, "Sign me up"'. (Site 2, Focus Group 2)*

For many, any program cost would have prohibited participation; *'I wouldn't be able to afford a similar program on the disability pension'.* (Site 3, Program Evaluation Form)

Some men expressed difficulty with enrolling into existing rural health initiatives but suggested rural Aussie-FIT was 'easy to come to'. An element of self-preservation is evident

as this man hints at the potential for stigma and a sense of discomfort within some group setting contexts.

*'There's been so many things that I've, over the last probably five years, have thought of, "I'd like to maybe go and do that." But then no, I can't do it. This is the first thing I've come to as a group where I've thought, "Well, I can fit in here..."'. (Site 3, Focus Group 1)*

Participants attested that the rural Aussie-FIT social environment was not stigmatizing: *'I've found no negative. It was an easy course, easy pace. Nobody felt ashamed of being overweight, yeah it was good'.* (Site 1, Focus Group 1). A supportive, fun, and inclusive environment appeared to facilitate ongoing participation. In the following exchange, gym environments are depicted as a potential source of stigma, shame, or embarrassment, and associated with a want to disappear (*'shrink down into the carpet'*). In contrast, you can feel the growth in confidence as this participant attests that *'here, we're all the same'*.

*P1: it's not a super-competitive environment or something like that, I felt more relaxed about coming here. It's not like we're out playing for a trophy.... we're just getting together and having a bit of fun.*

*P2: That's it. It comes back to having fun.*

*P3: And for gym, going to the gym, you have all these buff guys standing around you, and you're sort of going, you shrink down into the carpet because you're just embarrassed to be there. But here, we're all the same.*

*P2: You're not overwhelmed.* (Site 3, Focus Group 1)

Whilst a sense of similarity was evident, there was also a clear recognition of differences (e.g. football teams supported, football interest, and physical fitness levels) amongst group members. Differences and similarities both appeared to help foster togetherness, inclusion, and engagement, with intraparticipant focus group interactions evidencing the rapport and relationships established. In this exchange, the joking, laughter, and encouragement for a less physically fit teammate, exemplifies this.

*P1: So, 65 [years old]. So I did all right, I thought.*

*P3: No, I think you did great.*

*P2: Yeah, bloody oath [Australian slang meaning full agreement]...[...].*

*P1: I remember the second week, I fell over trying to pick up the ball, because I'm not that flexible. And [Coach 1] going, 'you okay? You okay?' [group laughter] (Site 2, Focus Group 1)*

An important feature of Aussie-FIT is the incremental build-up of PA, inclusive of men with different physical fitness levels. For some, including those most in need of support to improve their health, this was welcomed and facilitated ongoing program engagement.

*If I'd rocked up on that first night and we'd spent 45 minutes out there running around kicking a footy I probably wouldn't have come back the second week. So for me to start easy, with just a few laps the first night and ease into it.* (Site 1, Focus Group 1)

Equally, focus group participants suggested that the slow build-up of PA in the initial program sessions may have been perceived by some men who withdrew from the program as counter to their expectations: *'maybe they just wanted the footy stuff. They didn't want the bloody study side'* (Site 1, Focus Group 1). Indeed, the focus group discussions pointed to the importance of the PA component in attracting participants, and the inadvertent removal of this component due to injury generally resulted in program disengagement. The following participant associates the possibility of injury with a risk of detachment and marginalization from the group, and more generally a bleak outlook ('stand in the cold') with the fun footy program theme compromised as a result.

*'If you tear a hammy [hamstring] or something, you're gone aren't you. Are you going to come back, stand in the cold and watch you blokes having fun?'* (Site 3, Focus Group 1)

Conversely, others described that the team values and a moral code of inclusion may have fostered ongoing program engagement for a minority of men who picked up an injury.

*'The poor guy's out walking laps because of his knee and the rest of us are running around. So I think that was [participant's name] suggestion actually which was... I thought it was a good thing to go over and walk a lap and have a chat. And try and keep him a part of the group'*. (Site 1, Focus Group 1)

### Connection and community

The 'social aspect' was rated as important in a third of men's enrolment decisions. For some, this was tied to a nostalgic itch to relive the team atmosphere and social connectedness of past football or other team-based sports playing days. This man expressed his desire for social and community connection.

*I [am] also new to town, so wanted to meet some new people. Not for any other reason and to try and get back into sort of a team like atmosphere, I guess. That's the main reason I got into it.* (Site 1, Focus Group 2)

Several men reported first hearing about Aussie-FIT from their partners or consulting them to discuss participating. Some were strongly encouraged to enrol; *'get off your arse'*. This man's partner encouraged him to get involved to connect with other men.

*You know what it's like? You get a bit lonely after – you know, and she works away. Well, in town. So she's trying to get me amongst fellas....*

*I just enjoyed it, you know? Got out, and my wife said, "oh, I'm proud of you!" So if the wife says that, well, well! [laughter] I'm on a roll!* (Site 2, Focus Group 1)

Some men encouraged existing connections to get involved alongside them. In Site 1, one participant's withdrawal resulted in three men he helped recruit also withdrawing. This influential participant was described as the *'glue keeping them [the four men] together'*. For others, fewer preestablished connections in the group provided an opportunity for openness and expansion of their local social networks.

*One mate influenced the other three to come. And then as soon as he pulled out, because he went back to actually playing footy, the other three guys just dropped out straight away. So I kinda, at first I thought I hope there's some people there I know. And there is a couple of guys that I knew. But I liked the idea more that I didn't know too many guys, and we all had to sort of talk to each other.... it sort of makes you open up a bit more, so.* (Site 1, Focus Group 1)

Various factors appeared to motivate men to attend, including socialization, enjoyment, and responsibility to their teammates. Although men described *'tentative'* early group interactions, a sense of belonging, togetherness, and community appeared to develop.

*It progressively increased, the banter and the conversation. I mean it was reasonably strong probably by mid-way point and perhaps that also aligned with more weeks, having got to know people and a bit about their story...* (Site 1, Focus Group 1)

The early program sessions may present a key stage for sustaining engagement. This participant provides insight into how those withdrawing may have questioned if Aussie-FIT suited their needs, as he did. Ultimately, it was the social connections established that kept him engaged.

*I really questioned it [continuing the program]. [...] But it was the blokes that I was seeing every Thursday. I really enjoyed the guys I was with. That brought me back.* (Site 2, Focus Group 1)

Unlike the metropolitan program where participants largely reside in disparate locations, the within-group connectedness contributed to a wider level of community connectedness.

*It's hilarious now, you're down the street, you bump into all these people, and they say, 'G'day', you have a yarn [chat]. And you're like, 'I never knew them 12 weeks ago'.* (Site 2, Focus Group 2)

An accountability to the group was noted, with absence often questioned the following week; *'where were you?'*. Men appeared to associate this group responsibility with a sense that their presence and group contribution were valued.

**P1:** *you say you're going to come, you don't keep the numbers up, you're letting people down sort of thing. So, you try and make more of an effort consciously to get here.*

**P2:** *I think we've been very lucky, because a pretty good group of blokes, so it makes all the difference.*

**P3:** *Well, the group is talking about trying to continue on too. Yeah, it's kicking a ball around, but yeah, the same people staying together. If you didn't like it, you wouldn't say that.* (Site 3, Focus Group 1)

Having the option to continue to meet the same men was a sentiment echoed across sites. The following participant emphasizes his desire to meet fellow participants post-program, pointing to the value of Aussie-FIT to him and



others as a social connector in rural communities, and a reluctance to leave this new community behind.

*With the same bunch of guys. And so, you would then stay together, you'd want to stay with the group, and you go to the next level, and the next level. (Site 3, Focus Group 1)*

## DISCUSSION

This study found that it was feasible to deliver Aussie-FIT programs in rural towns in WA. Facebook and word of mouth were the most effective recruitment strategies, and the sporting theme program theme and context were attractive to local men. An inclusive and supportive environment and intragroup connectedness supported program engagement. Recruiting and retaining program coaches was feasible but challenging with limited suitable local candidates. Sufficient lead-in time is required to recruit both participants and program coaches in rural towns, and local stakeholder support is essential for implementation in these contexts.

The lack of affiliation to specific clubs in rural Aussie-FIT was a core adaptation to the typical Fans in Training model (McDonald et al. 2023b). This study demonstrates that an Australian football program theme and context without professional club affiliation, can help overcome barriers to men's participation in behavioural weight management programs in rural areas. Sport plays a critical role in the social fabric of rural communities, with local sporting clubs often acting as community hubs, supporting social cohesion, inclusion, and regional identities (Spaaij 2009). Team sports are inherently social activities with participation often motivated by the opportunity for social connection (Lim et al. 2011), and sports participation is associated with psychosocial benefits in middle-aged and older adults (Sivaramakrishnan et al. 2021). The Covid-19 pandemic seriously impacted the mental health of many Australians, particularly in rural communities (Newby et al. 2020). The importance of community and connections for attracting men, and for their continued engagement in rural Aussie-FIT was evident. These findings are consistent with qualitative literature exploring men's opportunities to engage in activities that have the potential to positively influence mental health, for social connectedness, and the important role sport plays in rural Australian communities (Ahmadu et al. 2021, Hutchesson et al. 2021, Trail et al. 2021). For example, in a qualitative analysis of community stakeholder interviews in rural Australia (Victoria), Trail et al. (2021) highlight the importance of strengthening men's sense of community belonging by offering diverse gender-sensitised approaches to engage men in initiatives that provide opportunities for social connection in spaces where they feel accepted and welcomed (Trail et al. 2021). This study extends the evidence base in this area, moving beyond stakeholder consultations alone, and provides a case example demonstrating the potential for capitalizing on a popular local sporting code to deliver a gender-tailored intervention that fosters community connection in rural Australian towns.

Despite successfully recruiting participants, the time to recruit sufficient men to run a program was more protracted than in the metropolitan Aussie-FIT pilot in which 426 men expressed interest in 3 days (Kwasnicka et al. 2021). The AFL club affiliation, social media promotions, and professional program delivery settings were highly attractive to men in metropolitan areas. Given the smaller population to draw

from in rural Aussie-FIT, these differences in recruitment rates were anticipated and should be planned for in future roll out timelines. In the present study, over half of the participants first heard about rural Aussie-FIT via Facebook (AUS \$7.81 cost-per-recruit). In a systematic review examining Facebook recruitment to health research spanning different populations and study types, the mean cost-per-recruit was US \$19.77 (AUS \$29.23) (Whitaker et al. 2017). Thus, cost-per-recruit via Facebook appears favourable when compared to the wider literature. In addition, Facebook promotions also helped to instigate word-of-mouth recruitment, with individuals (e.g. female partners) informing potential participants about the program. As suggested in our preprogram stakeholder consultations (McDonald et al. 2023b), word of mouth also played a prominent role in rural Aussie-FIT. Thus, adopting a recruitment strategy that integrates local Facebook promotions and encourages word of mouth is recommended for engaging participants in rural communities.

Rural communities are distinct, and one-size-fits-all approaches to rural community health may not be appropriate (Gilbert et al. 2019). This is illustrated in the current study. For example, in Site 1, the decision to schedule the program during winter months to avoid farming season was based on local stakeholder recommendations (McDonald et al. 2023b) and was described as 'spot on' for engaging many local men who would have otherwise been unavailable. Other factors, such as challenges related to the recruitment and retention of program coaches were consistent across sites. The limited interest in the coach roles may pose a threat to establishing Aussie-FIT in rural towns that lack the coaching infrastructure and population to draw on in metropolitan locations. Sufficient lead time to identify suitable coaches was essential, as was the role of local stakeholders in helping to publicize the role. Engaging coaches whose career aspirations, current community involvement, ongoing availability, and/or coaching experience align well with Aussie-FIT, is likely to be important for coach retention and program sustainability. Across sites, local stakeholder support was a major facilitator to both coach and participant recruitment.

## STRENGTHS AND LIMITATIONS

The mixed-methods approach adds depth of understanding around the complexities of implementing community health initiatives and engaging men in rural Australian towns in sports-setting-based health programs. The findings may be of particular relevance in countries such as Australia that face rural inequalities in health and lack professional sporting contexts outside of major cities. Participants from each of the six programs delivered (and each of the three sites) were represented in the focus groups, providing an understanding of program engagement from perspectives across distinct rural communities. Focus group interviewees also provided valuable insights as to why some of their peers disengaged. Although the Covid-19 context affected engagement in Site 3, overall program attendance rates in rural Aussie-FIT were comparable to other health promotion interventions delivered in professional sporting contexts (George et al. 2022, Petrella et al. 2024). For example, in the Hockey-Fans in Training trial program attendance rates were reported as 61.6% of participants attending at least 6 out of 12 sessions (Petrella et al. 2024), which the rural Aussie-FIT program compares favourably against (79.5% of participants attended

at least 6 of 12 sessions). Nevertheless, more than half of the participants attended fewer than 10 rural Aussie-FIT sessions. Future iterations of Aussie-FIT may consider involving consumers and stakeholders to develop additional strategies to increase program attendance.

Limitations include the lack of non-completers who completed the withdrawal survey, limiting learning from those least engaged. The program sites were small-to-medium-sized towns with football facilities available that were 1.5–5 hours driving time from Perth. Rural Australia is very diverse within and outside of WA. Thus, more remote settings in northern WA and elsewhere in Australia may face different challenges. As this study reports on two initial deliveries of Aussie-FIT in each site, conclusions on the feasibility of repeated or sustained rural deliveries cannot be drawn. Five participants in the current study identified as Aboriginal, however, additional cultural tailoring and co-design may be warranted to specifically engage Aboriginal and/or Torres Strait Islander Peoples in rural and urban Australian communities more broadly. The design of this study does not allow for the assessment of the effectiveness of the program. The Aussie-FIT program is currently being tested in a multistate/territory hybrid effectiveness-implementation randomised controlled trial to establish intervention effectiveness and potential for scaling across diverse Australian contexts (McDonald *et al.* 2023a).

## CONCLUSION

This study provides insights into how popular local sporting codes and community sports settings can be utilized to help engage rural men in a health behaviour change intervention. For the implementation of similar health programs in rural towns, local stakeholder involvement should be sought early, additional time allowed to recruit participants and program facilitators compared with metropolitan-based programs, and Facebook and word of mouth could be integrated to recruit participants. A dedicated network of stakeholder ‘champions’ may be essential for the sustainability of Aussie-FIT and similar programs in rural areas. Rural communities are distinct, and alternative or adapted approaches informed by local stakeholders and consumers may be required to meet the needs of diverse rural communities.

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## Author contributions

M.M. coordinated all project activities including coach recruitment and training; developing and maintaining stakeholder relationships; organizing program resources, equipment, and venues; coordinating recruitment efforts and participant enrolments; the collection and analysis of mixed-methods data; and wrote this manuscript. E.Q. supported M.M. in all the project activities. E.Q., M.M., D.K., N.N., and K.H. were involved in funding acquisition. E.Q.,

K.H., J.M., D.K., and N.N. supervised M.M. B.S. facilitated one focus group. F.D. helped with enrolments and data collection in Site 3. All authors were involved in reviewing and editing the manuscript. All authors approved the final version.

## Conflict of interest

Dr Matthew McDonald, Prof. Kate Hunt, A/Prof Joanna Moullin, Mr Brendan Smith, Mr Fraser Donald, Prof. Deborah Kerr, Prof. Nikos Ntoumanis, and A/Prof. Eleanor Quested declare that they have no competing interests.

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## Data availability

The data that support the findings of this study are available upon request from the corresponding author.

## Ethics statement

The study was approved by the Curtin University Human Research Ethics Committee (HRE2021-0217). The study was registered prospectively in the Australian New Zealand Clinical Trials Registry (ACTRN12621000763842).

## REFERENCES

- Ahern AL, Aveyard P, Boyland EJ *et al.* Inequalities in the uptake of weight management interventions in a pragmatic trial: an observational study in primary care. *Br J Gen Pract* 2016;66:e258–63. <https://doi.org/10.3399/bjgp16X684337>
- Ahmadu M, Herron RV, Allan JA *et al.* Identifying places that foster mental health and well-being among rural men. *Health Place* 2021;71:102673. <https://doi.org/10.1016/j.healthplace.2021.102673>
- Alston L, Jacobs J, Allender S *et al.* A comparison of the modelled impacts on CVD mortality if attainment of public health recommendations was achieved in metropolitan and rural Australia. *Public Health Nutr* 2020;23:339–47. <https://doi.org/10.1017/S136898001900199X>
- Archibald D, Douglas E, Hoddinott P *et al.* A qualitative evidence synthesis on the management of male obesity. *BMJ Open* 2015;5:e008372.
- Australian Bureau of Statistics. *The Australian Statistical Geography Standard Remoteness Structure*. 2016. [www.abs.gov.au/websitedbs/D3310114.nsf/home/remotenessstructure](http://www.abs.gov.au/websitedbs/D3310114.nsf/home/remotenessstructure) (10 November 2022, date last accessed).
- Australian Institute of Health and Welfare [AIHW]. *Rural & Remote Health*. 2022. <https://www.aihw.gov.au/reports/rural-remote-australians/rural-remote-health> (10 November 2022, date last accessed).
- Bernal GE, Domenech Rodríguez MM. Cultural adaptations: Tools for evidence-based practice with diverse populations. American Psychological Association, 2012.
- Birch JM, Jones RA, Mueller J *et al.* A systematic review of inequalities in the uptake of, adherence to, and effectiveness of behavioral weight management interventions in adults. *Obes Rev* 2022;23:e13438.
- Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qual Res Sport Exerc Health* 2019;11:589–97. <https://doi.org/10.1080/2159676x.2019.1628806>

- Braun V, Clarke V. Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. *Couns Psychother Res* 2021;21:37–47.
- Cabassa LJ, Baumann AA. A two-way street: bridging implementation science and cultural adaptations of mental health treatments. *Implement Sci* 2013;8:1–14.
- Calder R. *Obesity Rate Depends on Where You Live*. 2019. [www.mitchellinstitute.org.au/news/obesity-rate-depends-on-where-you-live/](http://www.mitchellinstitute.org.au/news/obesity-rate-depends-on-where-you-live/) (10 November 2022, date last accessed).
- Dolan A. 'You can't ask for a Dubonnet and lemonade!': working class masculinity and men's health practices. *Sociol Health Illn* 2011;33:586–601. <https://doi.org/10.1111/j.1467-9566.2010.01300.x>
- Elliott M, Gillison F, Barnett J. Exploring the influences on men's engagement with weight loss services: a qualitative study. *BMC Public Health* 2020;20:1–11.
- Evans J, Frank B, Oliffe JL *et al*. Health, illness, men and masculinities (HIMM): a theoretical framework for understanding men and their health. *J Men's Health* 2011;8:7–15. <https://doi.org/10.1016/j.jomh.2010.09.227>
- Exercise & Sports Science Australia [ESSA]. *Pre-Exercise Screening Systems*. 2019. [https://www.essa.org.au/Public/ABOUT\\_ESSA/Pre-Exercise\\_Screening\\_Systems.aspx](https://www.essa.org.au/Public/ABOUT_ESSA/Pre-Exercise_Screening_Systems.aspx) (10 November 2022, date last accessed).
- George ES, El Masri A, Kwasnicka D *et al*. Effectiveness of adult health promotion interventions delivered through professional sport: systematic review and meta-analysis. *Sports Med* 2022;52:1–19.
- Gilbert AS, Duncan DD, Beck AM *et al*. A qualitative study identifying barriers and facilitators of physical activity in rural communities. *J Environ Public Health* 2019;2019:7298692. <https://doi.org/10.1155/2019/7298692>
- Gough B, Flanders G. Celebrating 'obese' bodies: gay 'bears' talk about weight, body image and health. *Int J Men's Health* 2009;8:235–53. <https://doi.org/10.3149/jmh.0803.235>
- Hunt K, Wyke S, Bunn C *et al*. Scale-up and scale-out of a gender-sensitized weight management and healthy living program delivered to overweight men via professional sports clubs: the wider implementation of football fans in training (FFIT). *Int J Environ Res Public Health* 2020;17:584. <https://doi.org/10.3390/ijerph17020584>
- Hunt K, Wyke S, Gray CM *et al*. A gender-sensitised weight loss and healthy living programme for overweight and obese men delivered by Scottish Premier League football clubs (FFIT): a pragmatic randomised controlled trial. *Lancet (London, England)* 2014;383:1211–21. [https://doi.org/10.1016/S0140-6736\(13\)62420-4](https://doi.org/10.1016/S0140-6736(13)62420-4)
- Hutchesson H, Dollman J, Baker A *et al*. Barriers and enablers to implementing mental well-being programs through Australian rural football clubs—a qualitative descriptive study. *Health Promot J Austr* 2021;32:326–34. <https://doi.org/10.1002/hpja.358>
- Kwasnicka D, Donnachie C, Thøgersen-Ntoumani C *et al*. The Aussie-FIT process evaluation: feasibility and acceptability of a weight loss intervention for men, delivered in Australian football league settings. *Psychol Health* 2021;37:1–20.
- Kwasnicka D, Ntoumanis N, Hunt K *et al*. A gender-sensitised weight-loss and healthy living program for men with overweight and obesity in Australian Football League settings (Aussie-FIT): a pilot randomised controlled trial. *PLoS Med* 2020;17:e1003136.
- Lim AS, Schweickle MJ, Liddelow C *et al*. Process evaluations of health-promotion interventions in sports settings: a systematic review. *Health Promot Int* 2023;38:daad114.
- Lim SY, Warner S, Dixon M *et al*. Sport participation across national contexts: a multilevel investigation of individual and systemic influences on adult sport participation. *Eur Sport Manag Q* 2011;11:197–224. <https://doi.org/10.1080/16184742.2011.579993>
- Maddison R, Hargreaves EA, Jiang Y *et al*. Rugby Fans in Training New Zealand (RUFIT-NZ): protocol for a randomized controlled trial to assess the effectiveness and cost-effectiveness of a healthy lifestyle program for overweight men delivered through professional rugby clubs in New Zealand. *Trials* 2020;21:139.
- McDonald MD. 'A different ball game': engaging men from rural and lower socioeconomic areas in behavioural weight management interventions. Curtin Theses, Curtin University, 2023. <http://hdl.handle.net/20.500.11937/92910>
- McDonald MD, Brickley B, Pavey T *et al*. Scale-up of the Australian Fans in Training (Aussie-FIT) men's health behaviour change program: protocol for a randomised controlled hybrid effectiveness-implementation trial. *BMJ Open* 2023a;13. <https://doi.org/10.1136/bmjopen-2023-078302>
- McDonald MD, Hunt K, Moullin J *et al*. 'A different ball game': adaptation of a men's health program for implementation in rural Australia. *BMC Public Health* 2023b;23. <https://doi.org/10.1186/s12889-023-16247-w>
- McDonald MD, Hunt K, Sivaramakrishnan H *et al*. A systematic review examining socioeconomic factors in trials of interventions for men that report weight as an outcome. *Obes Rev* 2022;23:e13436. <https://doi.org/10.1111/obr.13436>
- Moreno-Llamas A, García-Mayor J, De la Cruz-Sánchez E. Urban-rural differences in trajectories of physical activity in Europe from 2002 to 2017. *Health Place* 2021;69:102570. <https://doi.org/10.1016/j.healthplace.2021.102570>
- Newby JM, O'Moore K, Tang S *et al*. Acute mental health responses during the COVID-19 pandemic in Australia. *PLoS One* 2020;15:e0236562. <https://doi.org/10.1371/journal.pone.0236562>
- O'Connor A, Wellenius G. Rural–urban disparities in the prevalence of diabetes and coronary heart disease. *Public Health* 2012;126:813–20. <https://doi.org/10.1016/j.puhe.2012.05.029>
- Osborne A, Carroll P, Richardson N *et al*. From training to practice: the impact of ENGAGE, Ireland's national men's health training programme. *Health Promot Int* 2016;33:daw100–467. <https://doi.org/10.1093/heapro/daw100>
- Petrella RJ, Gill DP, Silva NCBS *et al*. The hockey fans in training intervention for men with overweight or obesity: a pragmatic cluster randomised trial. *EClinicalMedicine* 2024;77.
- Petrella RJ, Gill DP, Zou G *et al*. Hockey fans in training: a pilot pragmatic randomized controlled trial. *Med Sci Sports Exerc* 2017;49:2506.
- Porter GC, Laumb K, Michaud T *et al*. Understanding the impact of rural weight loss interventions: a systematic review and meta-analysis. *Obes Rev* 2019;20:713–24.
- Punt SE, Kurz DL, Befort CA. Recruitment of men into a pragmatic rural primary care weight loss trial. *Am J Men's Health* 2020;14:1557988320971917. <https://doi.org/10.1177/1557988320971917>
- Quested E, Kwasnicka D, Thøgersen-Ntoumani C *et al*. Protocol for a gender-sensitised weight loss and healthy living programme for overweight and obese men delivered in Australian football league settings (Aussie-FIT): a feasibility and pilot randomised controlled trial. *BMJ Open* 2018;8:e022663.
- Ryan RM, Deci EL. *Self-determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness*. New York City, New York: Guilford Publications, 2017.
- Sabinsky MS, Toft U, Raben A *et al*. Overweight men's motivations and perceived barriers towards weight loss. *Eur J Clin Nutr* 2007;61:526–31. <https://doi.org/10.1038/sj.ejcn.1602537>
- Sivaramakrishnan H, Gucciardi DF, McDonald MD *et al*. Psychosocial outcomes of sport participation for middle-aged and older adults: a systematic review and meta-analysis. *Int Rev Sport Exerc Psychol* 2021;17:398–419. <https://doi.org/10.1080/1750984x.2021.2004611>
- Spaaij R. The glue that holds the community together? Sport and sustainability in rural Australia. *Sport Soc* 2009;12:1132–46. <https://doi.org/10.1080/17430430903137787>
- Taylor Smith A, Dumas A. Class-based masculinity, cardiovascular health and rehabilitation. *Sociol Health Illn* 2019;41:303–24. <https://doi.org/10.1111/1467-9566.12827>

- Trail K, Oliffe JL, Patel D *et al.* Promoting healthier masculinities as a suicide prevention intervention in a regional Australian community: a qualitative study of stakeholder perspectives. *Front Sociol* 2021;6. <https://doi.org/10.3389/fsoc.2021.728170>
- Wyke S, Bunn C, Andersen E *et al.* The effect of a programme to improve men's sedentary time and physical activity: the European fans in training (EuroFIT) randomised controlled trial. *PLoS Med* 2019;16:e1002736.
- Whitaker C, Stevelink S, Fear N. The use of facebook in recruiting participants for health research purposes: a systematic review. *J Med Int Res* 2017;19:e290. <https://doi.org/10.2196/jmir.7071>