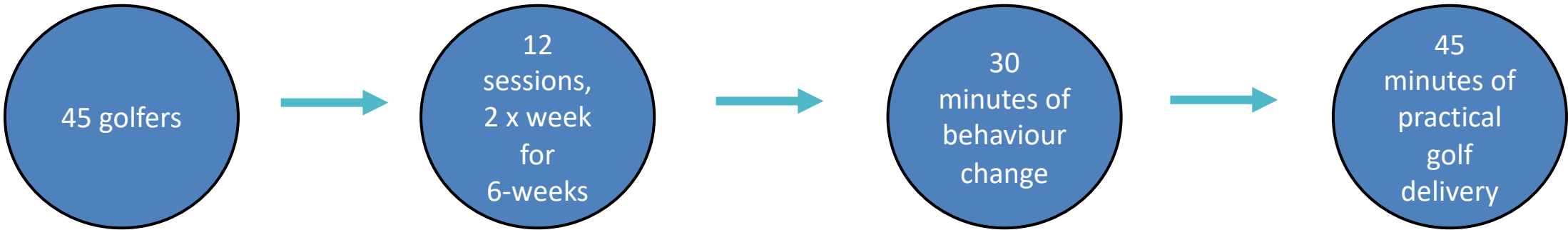


Golf on Referral: Full pilot evaluation 2017-2019



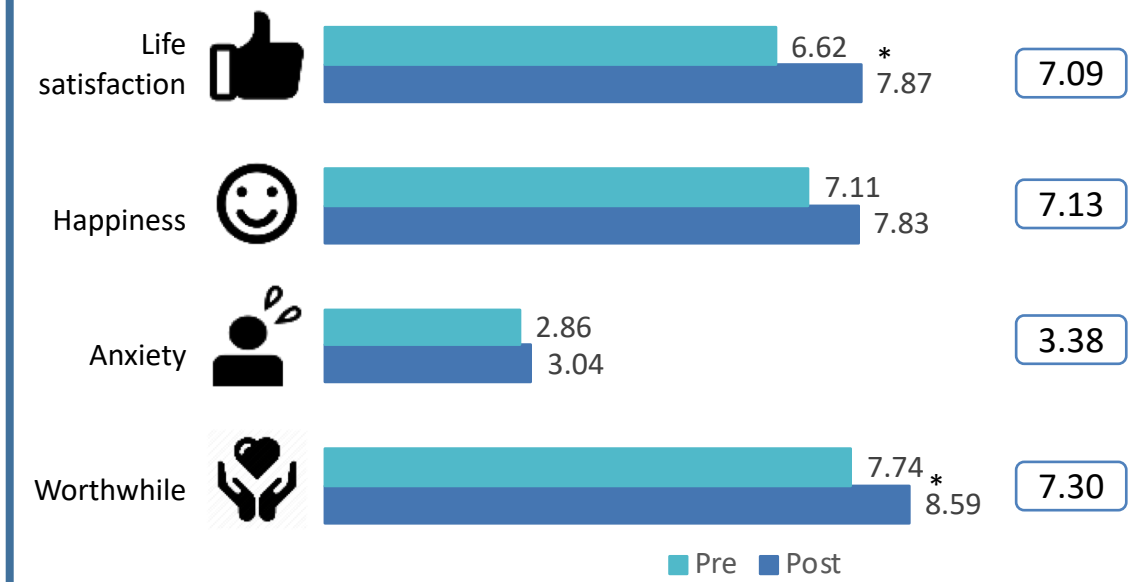
Golf on Referral: Full pilot evaluation 2017-2019



Mental Wellbeing

Pilot Data

National Data

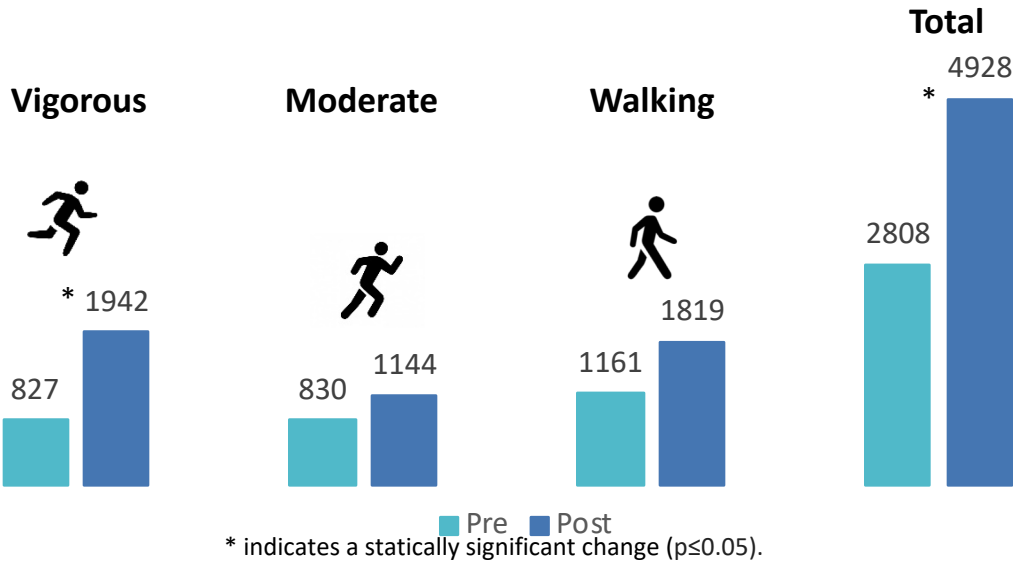


* indicates a statically significant change ($p \leq 0.05$).

- Life satisfaction, happiness, and worthwhile increased from pre to post.
- All scores were better than the UK national averages after Golf on Referral.
- Although anxiety increased, it remained under the UK average.

Physical Activity Levels

MET-minutes per week for the different types of physical activity are shown below for the golf participants.



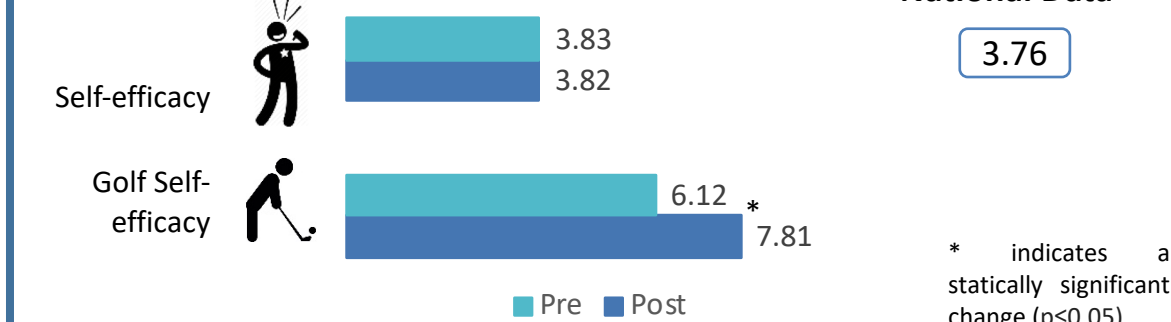
* indicates a statically significant change ($p \leq 0.05$).

- Total MET minutes of activity per week significantly increased for vigorous and total physical activity levels, showing overall improvements.

Self-efficacy

Pilot Data

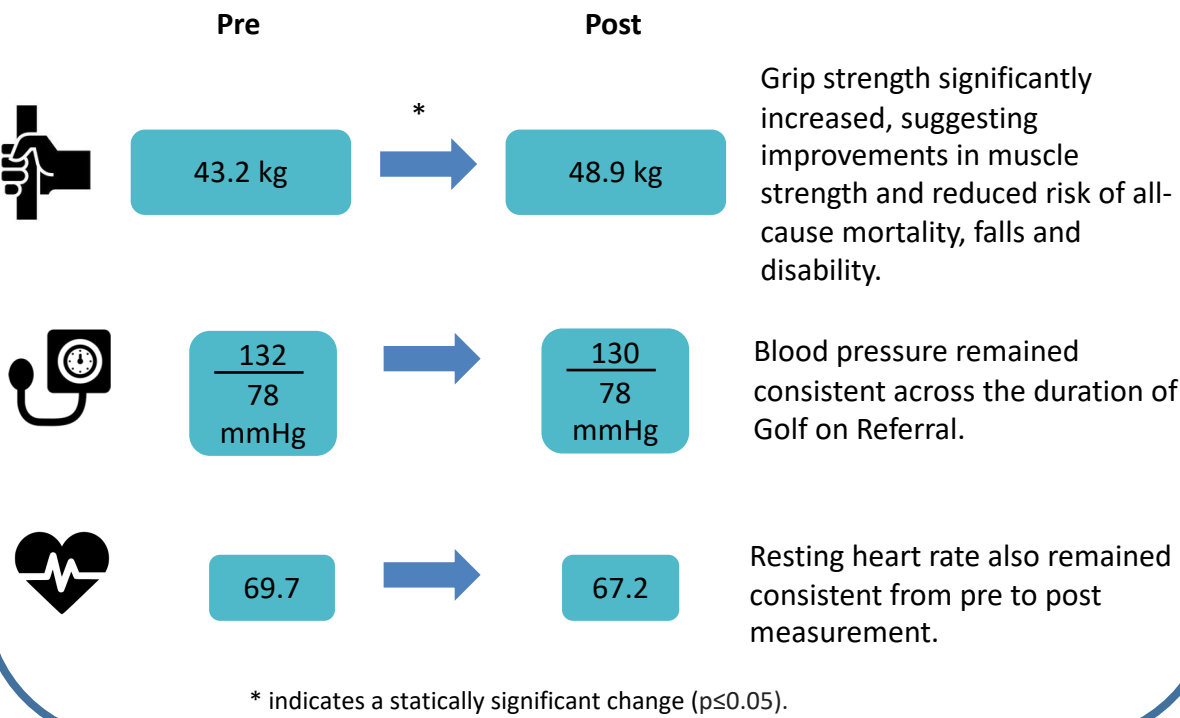
National Data



* indicates a statically significant change ($p \leq 0.05$).

- Golf self-efficacy significantly increased from from pre to post.
- Self-efficacy remained constant and above the UK national average.

Physiological Findings



* indicates a statically significant change ($p \leq 0.05$).

Grip strength significantly increased, suggesting improvements in muscle strength and reduced risk of all-cause mortality, falls and disability.

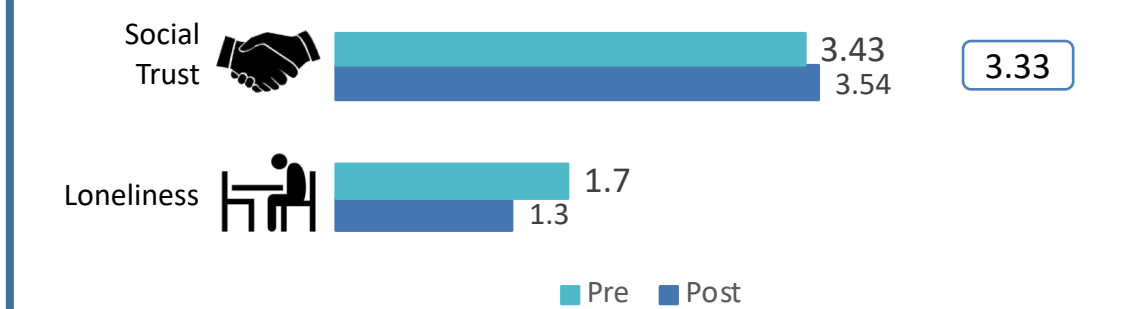
Blood pressure remained consistent across the duration of Golf on Referral.

Resting heart rate also remained consistent from pre to post measurement.

Social Trust

Pilot Data

National Data



- Social increased slightly, but not significantly, however remained greater than the UK national average.
- Feelings of loneliness reduced from pre to post measurement.

Recommendations

- The current delivery team structure model be maintained, which takes into account the need for a supportive, engaging and relevant tutor who uses both the golf and behaviour change toolkits.
- It is recommended that the golf clubs provide support outside of the structured sessions for participants.
- All session leaders are fully equipped to deliver Golf on Referral and provided appropriate training and support.
- Two sessions a week for six weeks is feasible and liked by participants. Exercise referral findings suggest long term schemes are more successful, therefore it is recommended that this model should be compared to one session a week for 12-weeks, more traditional referral pathways, and a control group.
- Data can be used to demonstrate the outcomes of Golf on Referral and support It is recommended that ongoing data collection should be incorporated into the delivery. Research should incorporate best practice for data collection in line with recommended collection methods and outcomes linked to exercise referral.

Forewords

Rob Drinkwater, Head of Participation & Club Support, England Golf



England Golf would like to thank Mytime Active and ukactive for their support in piloting the 'Golf on Referral' concept. The health benefits of golf have long been known anecdotally by those taking part in the game, but as an industry we probably haven't used that angle strongly enough to attract and 'sell' those benefits to new audiences and participants. We're really excited about taking the learnings from these pilots and further developing the 'Golf on Referral' model; working with Mytime Active as well as other leisure, health and wellbeing providers to hopefully add the product into their hubs and menus of activity options for service users.



**ENGLAND
GOLF**

Jason Stanton, Operations Director, Mytime Active

It all started when I applied for a role with Mytime Active and was asked this interview question, by Mytime Active's CEO, Marg Mayne, 'How does Golf improve your wellbeing?' Then to test the theory, we devised the concept of "Golf on Referral" and found a willing external research partner in Steve Mann and ukactive. We then had to find willing partners in Abbie Lench, Richard Flint and England Golf. Now to deliver the programme within the Mytime Active golf estate through a great team, Scott Bartlett, Matt Burns, Rob Lucas, Diane Friday, Tristian Hodgkinson, Glenn Siddons and Dan Byrne to name a few. Thank you to all our willing customers through the delivery of this valuable programme. Please do not underestimate the importance of bringing concepts to reality. A huge thank you and congratulations to all those involved.



mytimeactive

Matthew Wade, Head of Research, ukactive



Our partnership with England Golf and Mytime Active has helped to build on the evidence examining golf participation and golfs inclusion as an alternative referral pathway. We know that regular physical activity has numerous health benefits for those that take part. However, it is important to consider appropriate evidence-based interventions for different populations. This evaluation of the Golf on Referral pilot has shown improvements in physical and mental wellbeing as well as social interaction, and demonstrates the feasibility of delivery. Further research and wider roll out will further build upon this evidence and hopefully provide golf based interventions that create positive behaviour change supporting the long-term sustainability of the NHS.

Introduction

It is widely acknowledged that regular participation in physical activity can help to prevent and manage over 20 non-communicable chronic conditions that include coronary heart disease, type 2 diabetes, stroke, cancer, obesity, mental health problems, and musculoskeletal conditions¹. A wide range of interventions and campaigns exist aiming to promote improvements in physical activity, with a popular method being exercise referral schemes. The current level of evidence for exercise referral schemes suggest there are positive benefits for these schemes, however they only have marginal added effect compared to other methods². Recent findings from the National Referral Database regarding exercise referral schemes broadly have been lacklustre suggesting there may be a need to review how and what is delivered^{3,4}.

Participation in golf has been linked with meeting and exceeding the recommended levels of moderate to vigorous physical activity⁵. Furthermore, golf participation has also been shown to support improvements in wider health such as reduction in stress and anxiety, and increase confidence and self-esteem, especially in survivors of cancer or stroke^{6,7}. A report by England Golf, Mytime Active, and the ukactive Research Institute found that golf was positively associated with individuals physical and mental wellbeing as well as the wider community⁸. Reasons for participation in golf are focused on non-health related factors such as for fun, a pleasant playing environment and competition, with females also rating community spirit highly⁹.

According to the Sport England Active Lives May 2019 survey¹⁰, 2.2% of the population participated in golf twice in the 28 days preceding the survey completion. This was greatest for men and for those aged between 55 and 84 years of age. Research has suggested that for middle-aged men (48 to 64 years), walking during a golf game significantly improved aerobic performance, trunk muscle endurance, cholesterol levels, and waist circumference¹¹. Walking during a game of golf is linked to high adherence and a low risk of injury, and therefore described as a 'good form of health enhancing physical activity'¹¹. Beyond walking, a structured exercise programme that focused on golf for men aged between 36 and 59 years improved strength, flexibility and balance¹².



Evidence has established a link between participation in golf and improvements in physical and mental health. However there is no pathway currently linking golf participation into healthcare. Exercise referral schemes do provide a pathway for individuals to be supported to become more physically active, presenting an opportunity to link golf and exercise referral schemes. This could involve growing golf participation in a way that enables participants to create a lifelong habit by improving health, developing skills, and facilitating positive behaviour change. Additionally, characteristics of nature-based outdoor environments offer behavioural opportunities for physical activity, social interactions, and individual-environment interactions, which themselves function to enhance human health and wellbeing¹³.





The findings from the England Golf, Mytime Active, and the ukactive Research Institute report⁸ informed the setup of 'Golf on Referral'. Golf on Referral was developed to provide an additional referral route alongside Mytime Active's traditional referral pathways, incorporating group support on various aspects of a healthy life alongside specific golf skills. The aim of this current report is to combine the results from the pilot delivery phases of Golf on Referral, and offer recommendations as to the future implementation of golf as a referral route. This report combines the findings presented in 'Golf on Referral: Pilot Review' which provided interim findings, with recent data from the final phase of pilot delivery.

The Golf on Referral programme

Aim

As outlined in the pilot review report, it was anticipated that golf would provide an attractive physical activity opportunity to inactive people who would not necessarily refer themselves to a traditional fitness facility, or accept a traditional exercise referral from a GP. The programme was designed to take inactive people at risk of chronic conditions, and introduce them to golf to improve their physical and mental health.

The programme development looked to incorporate these evidence based principles:

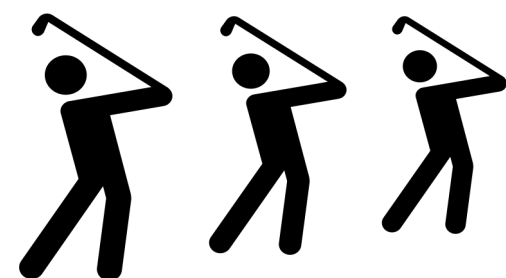
-  The programme must be accessible, social, and fun
-  The programme must incorporate elements of wider behaviour change
-  The programme must develop golf skills and help people understand the game
-  The programme must deliver enough physical activity to enable health benefits



Development

A programme was developed to include a group behaviour change session followed by a skill based golf lesson. The Golf on Referral's group sessions were incorporated to provide participants with the chance to meet new people, stay motivated, and learn new ways to make positive, long-lasting changes to their lifestyle. Each week the Exercise Professional led a focused session based around 12 key topics. These topics encouraged open discussion, and for individuals to think about their own experience. Topics covered areas such as reaching goals, feeling supported, realising your potential, trying something new, making time for yourself, and feeling energised.

The golf lesson followed immediately after the group behaviour change sessions. Mytime Active developed a progressive golf programme based around the principles of 'Get Active in Golf'. This programme was split into two halves, with sessions progressing through skills of putting, chipping, pitching, irons, woods, and on the course. The programme developed in the second half, revisiting each of these skills, increasing the knowledge and working on skills of those taking part. Each of the golf sessions had clear aims that focused on golfing knowledge, demonstration, and skill.



The Golf on Referral pilot

Pilot phases

Golf on Referral was piloted over three phases from September 2017 to November 2019. The pilot was conducted across three Mytime Active golf courses; Bromley, Orpington, and Hatchford Brook. The table below details each golf courses involvement during each phase. Delivery was over six weeks, with two sessions delivered each week. Each session consisted of 30 minutes of group behaviour change followed by 45 minutes of practical golf delivery.

The third pilot phase looked to recruit participants at two further golf courses but was unsuccessful in engaging participants through the current exercise referral route as well additional targeted approaches. Possible reasons for the lack of engagement at these sites is unclear and data was not captured from individuals who initially showed an interest. However, at the three sites the pilot was conducted there were established referral links within the community, and exercise professionals and golf professionals engaged and passionate about the offering. This may have been one factor in the success across these locations.

Table 1. Phases of the project each course was involved in.

Golf course:	Phase 1:	Phase 2:	Phase 3:
Bromley	September – October 2017	March – April 2018	May – June 2019
Orpington		March – April 2018	May – June 2019 September – November 2019
Hatchford Brook			October – November 2019

Participants

A total of 45 participants took part across the three pilot phases (eight during phase 1, 14 during phase 2, and 24 during phase 3). The majority of participants took part at Bromley Golf Course, the location of the first pilot. Two thirds of participants were male, and 51% of participants who provided their age were between 66 and 75 years old. The table below provides a full overview of participants.

Table 2. Participants demographics and engagement

Phase	n	Golf course	n	Gender	n	Age	n
Phase 1	8	Bromley	26	Male	30	35-45	2
Phase 2	13	Orpington	11	Female	15	46-55	2
Phase 3	24	Hatchford Brook	8			56-65	9
						66-75	19
						76-85	3
						86-95	2

Measuring impact

Across all the pilot delivery phases of Golf on Referral, data was collected to provide evidence of the impact on those taking part. The measurement approach looked to understand how participation in the scheme impacted both the physical and mental wellbeing of those taking part. Additionally, feedback was collected on what worked from a participant perspective.

To collect this information, the ukactive Research Institute utilised a triangulation approach consisting of self-report questionnaires, physiological measures, and focus groups. Both the questionnaire and physiological data were collected during the first and last session to provide a pre to post comparison of the outcomes.

Questionnaires

The questionnaires utilised were linked to the previous impact of golf research⁸. Specifically, the questionnaires asked the participants about their physical activity levels (utilising the International Physical Activity Questionnaire [IPAQ]), personal wellbeing, independent development, and social trust. These measures are four of the five outcomes set out in Government's Sporting Future strategy¹⁴. Participant self-efficacy in general and their self-efficacy to play golf were also asked to reflect participants confidence to undertake general and golf tasks. A single item measure of loneliness was introduced for phase 3.

Physiological data

Physiological data consisted of blood pressure and hand grip strength. The World Health Organisation states that an elevated blood pressure is the leading metabolic risk factor for an increase in cardiovascular disease¹⁵. Therefore, blood pressure was included as an indicator of cardiovascular disease risk. As physical activity and exercise significantly reduces blood pressure¹⁶ we anticipated a reduction in this outcome. Hand grip strength as also included as a simple, reliable and inexpensive alternative to measuring overall muscle strength, and a valid predictor of physical disability status, risk of complications post-surgery, and mobility limitation^{17,18}. Standardised protocols for both were followed.

Focus groups

Focus groups were conducted with participants after the 6th and 12th session for phases 1 and 2, and at the 12th session only for phase 3. Focus groups are a form of qualitative research, which explore elements of behaviour change, such as individuals' opinions, thoughts and feelings, as well a more in-depth understanding of their personal experiences¹⁹. Individuals were asked to provide feedback on the structure and balance of the course (including data collection), the quality of the topics discussed, behaviour change and practical sessions, the usefulness of the resource pack, the delivery of the session leaders, and overall thoughts and suggestions for improvements.



Analysis approach

Comparison of data collected pre (before the Golf on Referral delivery) and post (at the end of the Golf on Referral delivery) was analysed using Linear Mixed Modelling with random intercepts and slopes for participants, and adjusted for golf club location, to provide comparisons over time to be made while accounting for any missing data. Mean and 95% Confidence Intervals (95% CIs) are reported for each time point, with the significance level indicated. A significant change was indicated if $p < 0.05$. Where normative data is available for each variable, this is also provided.

Results

Wellbeing

Across the Golf on Referral pilot there were statistically significant improvements in life satisfaction, feelings of worthwhileness, and self-efficacy to play golf. The largest improvement was seen for participants self-efficacy to play golf. Feelings of happiness, self-efficacy, and trust increased over the 6-weeks however this was not to statistically significant. Anxiety scores declined over the 6-weeks, but again were not statistically significant. Comparing these outcomes to Sport England’s Active Lives Survey data, participants rated their happiness and life satisfaction worse than the normative data at baseline. Post data collection revealed that all of the outcomes were better than the available normative data. Loneliness data incorporated in phase 3 indicates participants are feeling lonely between 1 and 2 days a week, which reduced to closer to 1 day a week after the intervention. Statistical analysis was not conducted due to the small sample size for this outcome. These results suggest that participants are supported to improve their wellbeing, above that of normative data, with the greatest improvement in the self-efficacy to play golf.

Table 3. Pre and post mean (95% CIs) for personal wellbeing, self-efficacy, and trust scores.

	Pre			Post			P-value	National data ¹⁰
	n	Mean	95% CIs	n	Mean	95% CIs		
Life satisfaction	45	6.62	6.04-7.20	36	7.87	7.23-8.51	0.004*	7.09
Happiness	45	7.11	6.49-7.73	36	7.83	7.15-8.52	0.116	7.13
Anxious [#]	45	2.86	1.94-3.79	36	3.04	2.04-4.05	0.735	3.38
Worthwhile	44	7.74	7.19-8.29	37	8.59	8.00-9.18	0.011*	7.30
Self-Efficacy	44	3.83	3.61-4.06	36	3.82	3.57-4.06	0.917	3.76
Golf Self-Efficacy	44	6.12	5.27-6.97	37	7.81	6.90-8.72	<0.001*	7.74 ^{##}
Trust	44	3.43	3.22-3.64	37	3.54	3.21-3.77	0.439	3.33
Loneliness	18	1.7	N/A	12	1.3	N/A	N/A	N/A

*indicates a statically significant change (p≤0.05). [#]negatively scored (lower score is better).

^{##}Normative data taken from the impact of golf participation on health and wellbeing⁸

Information collected through the focus groups indicated that participants enjoyed being able to learn new golf skills alongside others who had gone through the same life experiences as them (e.g. post-surgery, heart attack, rehabilitation etc.), because it was motivating and did not feel pressurising. The social integration of the group was a common theme that was discussed throughout the focus groups. One individual described it as a great way to bring males together as a group to socialise, especially during or after an illness. Across the focus groups, Golf on Referral was discussed as supporting mental health, specifically confidence, anxiety, happiness, depression, stress, and loneliness, as well as substance abuse.

One individual described their group as “a little golf community, with them, going on the course and playing that first hole like we did, you don’t feel uncomfortable if there is someone there watching you”. They felt that the golf professionals aided this feeling, because of their patience and ability to make the sessions fun and comfortable. The latter was perceived as particularly important as individuals claimed it would have been a “put off” if the sessions had been too formal, elitist or too structured.

Individuals did, however, agree that it was useful to have the structure of setting goals (through the behaviour change sessions) because it gave them something to aim for and they could see their own improvements through the practical sessions. However, some participants stated the resource packs were overwhelming and therefore did not utilise them.

Results

Physical activity

Each of the three physical activity intensities improved from pre to post measurements, as did total physical activity. However, only vigorous and total physical activity significantly improved. Categorising physical activity levels reflected the overall improvement in the participant’s physical activity levels. At pre, 10 participants were categorised as low, 22 moderate, and 13 highly active. At post, this changed to eight categorised as low, 16 as moderate and 21 highly active.

Focus groups indicated that participation in the Golf on Referral programme had provided the participants with an opportunity to be physically active in the fresh air and green space. Many felt it was a gateway into playing more golf and an alternative to traditional gym offerings that received more negative views. Other activities were also discussed such as structured walking groups, swimming and gym-based activities that were appropriate to the age and condition of the individuals. Participants also discussed their intention to continue playing golf after the Golf on Referral programme ended, stating that the programme helped them with their confidence and required skills to play. The barrier of finance was discussed and how this could be overcome through tailored options or memberships beyond the Golf on Referral programme.

Table 4. Pre and post mean (95% CIs) results for self-reported PA, hand grip strength and blood pressure.

	Pre			Post			P-value
	n	Mean	95% CIs	n	Mean	95% CIs	
Vigorous MET-mins/week	40	827	275-1378	37	1942	1344-2539	0.002*
Moderate MET-mins/week	40	830	449-1210	35	1144	731-1557	0.182
Walking MET-mins/week	44	1161	436-1886	36	1819	1023-2615	0.217
Total MET-mins/week	37	2808	1770-3846	34	4928	3793-6064	0.005*
Hand grip strength (kg)	36	43.2	37.0-49.3	29	48.9	42.6-55.2	0.010*
Systolic blood pressure (mmHg)	34	132	126-139	28	130	123-138	0.607
Diastolic blood pressure (mmHg)	34	78	75-81	28	78	74-81	0.910
Pulse	34	69.7	64.9-74.4	28	67.2	62.1-72.2	0.305

*indicates a statically significant change (p≤0.05).

Physiological

Average hand grip strength significantly increased from pre to post measurement. Increases in grip strength are associated with improvements in physical disability status, risk of complications post-surgery, and mobility limitation^{17,18}.

Both blood pressure and pulse remained similar over the 6-week Golf on Referral delivery with no significant changes in systolic or diastolic blood pressure, or pulse. Traditional exercise referral has been reported to improve systolic blood pressure, but not diastolic, and neither to a clinically meaningful level²⁰.



Golf on Referral feedback

Behaviour change sessions

Overall, the behavioural change sessions were considered interesting and important. Initially, some individuals did claim they did not understand the point and wanted to focus on the practical golf. However, as time went by participants appreciated the opportunity to speak to other individuals about a range of topics, in particular wellbeing and mental health associated to physical activity, social support, and behaviour change. Again, overarching themes included stress and confidence around both physical activity and in general day to day life. Some participants saw the sessions as 'me time' and the behavioural change sessions helped with that belief.

The professionals leading these sessions were considered welcoming, friendly, non-judgemental and 'non-preachy', allowing discussion to flow freely. Individuals claimed that it was a useful support system, where they could learn new perspectives from each other, and could relate to what each other had been through. Some saw the sessions as a brief chat (formal or informal) which gave participants the opportunity to speak about things that they wouldn't usually be able to share. In particular, one individual claimed *"I talked about having anxiety, so coming here and talking about it has been brilliant because you need somebody to respond to. It's different than talking to the doctor, they just shrug like get on with it."*

Feedback on the Programme

In general, individuals claimed that Golf on Referral was well structured and ordered, with a good balance between the practical golf and the behavioural change sessions. They appreciated the course running twice a week, because it helped solidify the learnings and the connections they had made with people before they forgot skills or names. The resource book could be refined to be more reflective and less structured tasks which may help with participants using them.

One individual summarised:

"I think the way the programme is structured, so we start off with some mental focus on activity and the rationale behind our approaches, getting us thinking and talking about it, that's useful because it provides that focus. And then getting out on the practice range to receive advice and put it into action. I'm sitting here sweating, I certainly can feel that I have exercised. So despite the common view of golf, actually there is quite a lot of effort involved."

Participants really enjoyed the course, would recommend it to others, and could not understand why there were not more people wanting to take part where group sizes were small. They felt it had been a great opportunity to socialise, meet new people, build confidence and improve skills in golf.

Feedback from the session leaders

Feedback was collated from individuals involved in the delivery of the Golf on Referral programme. Overall, and similar to the participants, feedback was very positive. Session leaders felt that the programme allowed for great social support and connections through making friends, starting together, and having a small group so participants felt able to discuss topics openly. The sessions have made a difference to people's lives through golf skills and wider wellbeing improvements. The addition of the behaviour change element gave participants an opportunity to ask questions they might not want to ask the golf professionals.

All leaders felt it was important that all those involved had appropriate training and were comfortable with delivering their required element. Having this knowledge and skills required helped the session leaders to relate to the participants, especially those on specific medication, different circumstances, and possible complications.

It was felt that the fixed nature of the sessions meant that individuals who worked during the session delivery, had family to look after, or had other commitments may not be able to attend the sessions. The session leaders felt support was important to ensure participants continued playing golf after the six weeks. There were three examples given of participants continuing playing golf. One participant takes his grandson, whilst two others played golf whilst away on holiday.



Discussion and Recommendations

This report presents the results of all three Golf on Referral pilot phases. The aim of this research and report was to determine if golf can be used as an attractive proposition for inactive people who wouldn't necessarily refer themselves to a traditional fitness facility, or accept a referral from a GP. Furthermore, whether, through a Golf on Referral pathway, golf participation may improve health and wellbeing outcomes.






The data collected across the Golf on Referral pilot phases suggested significant improvements across mental and physical wellbeing are possible. Significant improvements were seen for life satisfaction, feelings of worthwhile, golf self-efficacy, vigorous and total physical activity, as well as hand grip strength. Where normative data could be compared, participants showed changes that could be considered meaningful by the end of the programme. Additionally, feedback collected through the focus groups suggested that the Golf on Referral programme supported participants to improve their physical and mental wellbeing through social connections reducing loneliness and isolation.

Furthermore, the focus groups provided feedback on the delivery of Golf on Referral which was positive. The delivery of sessions twice a week, inclusion of the behavioural change element, and professionals delivering, were all seen to help facilitate the improvements seen. Many participants stated how they would continue to play golf or participate in another activity due to the skills, knowledge, confidence and support received through Golf on Referral.

Golf may help to support increases in physical activity⁵, reduce stress and anxiety, and increase confidence and self-esteem, especially in survivors of cancer or stroke^{6,7}. Furthermore, there are improvements a range of physiological measures^{11,12}. Findings of this Golf on Referral pilot echo these positive benefits associated with golf participation in a population who are inactive and at risk of chronic conditions. This further demonstrates how golf can be used to support improvements in health, as well as indicating the feasibility of a referral pathway focused around golf.

This analysis and report of data collected across the first 3 phases of piloting for Golf on Referral within Mytime Active golf courses has demonstrated initial positive findings across physical and mental wellbeing measures, and qualitative feedback. Golf on Referral can be feasibly operated within golf courses, and provide an alternative option to the exercise referral pathway. However, 2 golf courses were unsuccessful in the engagement of participants to the programme, learnings supporting future delivery. This report recommends the continued evolution of Golf on Referral, building upon these pilots.

Specific recommendations include:

-  The session leaders created a welcoming and non-judgemental environment. It is recommended that the current delivery team structure model be maintained, which takes into account the need for a supportive, engaging and relevant tutor who uses both the golf and behaviour change toolkits.
-  Creating a welcoming environment at the golf courses can lead to sustained behaviour change and golf participation. It is recommended that the golf clubs provide support outside of the structured sessions for participants.
-  All session leaders are fully equipped to deliver Golf on Referral. It is recommended that appropriate training and support is provided to ensure activities, discussions and data collection can take place effectively and correctly.
-  The Golf on Referral pathway of two sessions a week for six weeks is feasible and liked by participants. Exercise referral findings suggest long term schemes are more successful, therefore it is recommended that this model should be compared to one session a week for 12-weeks, more traditional referral pathways, and a control group.
-  Data can be used to demonstrate the outcomes of Golf on Referral and support the development of the programme. It is recommended that ongoing data collection should be incorporated into the delivery. Research should incorporate best practice for data collection in line with recommended collection methods and outcomes linked to exercise referral.

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Working in partnership



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