

WHY PLAY GOLF?

THE BENEFITS ACROSS THE LIFE COURSE

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INTRODUCTION

Golf is played by >66 million people across >200 countries and territories worldwide¹. Golf's popularity is growing, with >5 million new golfers between 2016 and 2021, as people recognised that this outdoor sport, where physical distancing is possible, carried few risks and has substantial health and well-being benefits². Golf is enjoyed by all ages and abilities. Facilities and national federations are aiming to make golf accessible for all, and increase the number of junior golfers, female golfers, golfers with disabilities, and other previously under-represented groups.

Golf can continue to be played throughout the lifetime. It is common for different generations of people to come together to play golf³. Given that, globally, older adults have much lower sport participation compared to younger adults and children, golf can help provide sporting opportunity to the least active in society.

GOLF AND PHYSICAL ACTIVITY

Health Benefits of Physical Activity

Being physically active is one of the best things you can do for your health. It helps to decrease the chances of an early death, and prevents and treats over 40 major chronic illnesses including heart disease, strokes, type II diabetes, hip fractures, some forms of cancer, anxiety, depression and dementia⁴. Regular exercise has benefits for wider

mental well-being⁵. These benefits are available to people of all ages, genders, and backgrounds. Promotion of regular physical activity is an important opportunity for improving population health and reducing the burden of disease on global healthcare systems (Figure 1).

Golf as Physical Activity

Golf can provide moderate to vigorous intensity physical activity^{6,7}. Playing 18 holes of golf can require taking >16,000 steps in a pleasant outdoor environment, while carrying or pushing a bag that can weigh >15kg⁷. Moreover, moderate intensity physical activity can still be achieved by golfers riding a cart, with each 18 hole round requiring approximately 6000 steps to cover >4 miles⁷. As shown in Figure 2, the level of aerobic physical activity while playing golf is higher when walking the course as opposed to playing while riding a golf cart. A full round of golf takes approximately 4 hours. The World Health Organisation recommends a minimum of 150 minutes of moderate intensity physical activity per week for adults⁸. Playing golf can therefore contribute to persons reaching, and even surpassing, weekly physical activity recommendations.

Other forms of golf, such as using the driving range and miniature golf, provide less intense physical activity but do decrease sedentary time⁶. These can support

beginners, children and those unable to use the course to be active and may provide introductory options that assist progression to full course play as well as providing a form of golf to those with limited time. These multiple ways to play golf can extend the health and longevity benefits of physical activity to all ages, genders, and backgrounds.

Golf and Physical Health

Even adjusting for differences in age, income and social status, playing golf was found to be associated with a lifespan increase of 5 years⁹. Simply put, playing golf is associated with a longer life.

Golf can provide physical health benefits to persons who play the sport regularly, contributing to both individual and overall population health. As a form of moderate to vigorous intensity physical activity, golf can offer the well-established benefits of regular physical activity¹⁰. These benefits include increased productivity at work/school, as well as health-enhancements that promote immediate wellbeing, and reduction in risk factors for non-communicable diseases including cardiovascular disease, the leading cause of mortality worldwide^{4,11,12}.

Risk factors for heart disease that golf improves include:

- Reduced physical inactivity
- Increased high: low density lipoprotein ratio

Golf and Physical Activity



Figure 1: Golf as a physical activity summary.

Levels of Aerobic Physical Activity While Playing Golf

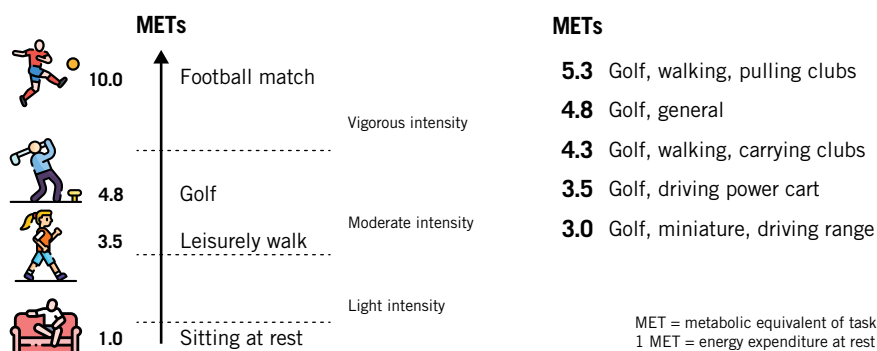
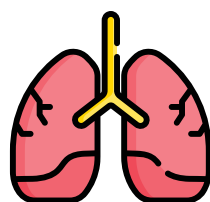
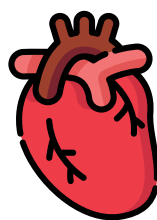


Figure 2: Levels of aerobic physical activity while playing golf.

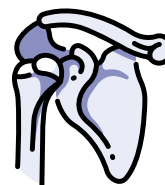
Golf and Physical Health Benefits



Reduction in asthma severity and improved preservation of pulmonary function with age



Reduction in multiple modifiable risk factors for cardiovascular disease



Improved balance, greater lower limb muscle bulk for older adults

Golfers live 5 years longer than non-golfers

Playing golf can provide physical health and longevity benefits

Figure 3: Golf and physical health.

- Improved blood glucose control
- Improved aerobic fitness
- Improved body composition
- Reduced systolic and diastolic blood pressure².

Other physical health benefits of golf participation include^{3,12}:

- Respiratory system
 - Reduced symptom severity and hospital admissions in children with asthma
 - Improved lung function in older adults
- Musculoskeletal system

- Greater lower limb muscle bulk
- Improved balance and prolonged preservation of bone density in older adults.

Golf is a low-impact sport that carries a relatively low injury risk^{13,14}. It is played predominantly in an outdoor physically distanced environment. The health benefits have been accepted to greatly exceed the minimal risks of the spread of COVID-19 and other transmissible diseases² while playing golf (Figure 3).

GOLF, MENTAL HEALTH, AND WELL-BEING *Golf and Mental Illness*

Playing golf may benefit people with common mental illnesses, although professional golf can be mentally demanding and elite competitors suffer similar conditions to other sports professionals^{15,16}. Physical activity is a proven treatment for anxiety and depression and is known to improve mood and sleep⁵. As a form of moderate to vigorous physical activity, it is likely that golf can provide these benefits to mental health.

Golf and Mental Wellness

There are established associations between playing golf and mental wellness. Golf is a sport that is played in a biodiverse green environment. It requires concentration and focus, offering an opportunity for mindfulness away from the stressors of daily life. It is a social group sport, played by individuals of differing abilities, ages and backgrounds, who can compete on an equal footing due to the handicapping system which can help provide enjoyable competition. The specific benefits to mental wellbeing that golf can provide include³:

- A sense of group identity
- Improved sense of self-worth and self-efficacy
- Opportunities for intergenerational interaction
- Strengthened mental resilience in children

Golf can be promoted as a form of green space physical activity that can improve mental wellbeing and may benefit symptoms of mental illness. Golf is a cognitively challenging physical activity, that may improve cognitive function especially in older adults (Figure 4).

Golf and Mental Health

There is evidence that golf promotes mental wellness.

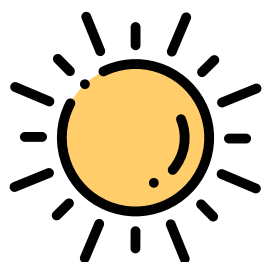


Playing golf may benefit persons with common mental illnesses, but further research is required.

Regular physical activity is of proven benefit to mental health, and has additional mental wellbeing benefits.

Figure 4: Golf and mental health.

Golf and Promoting Skin Health



Individuals	Facilities	Industry
Wear sun protective clothing Wear high SPF sunscreen Avoid play during brightest portions of the day	Provide sunscreen Promote shaded areas Display sun safe messaging and information	Provide educational resources Produce affordable sun protective clothing and sunscreen

Figure 5: Golf and promoting skin health.

GOLF AND HEALTH IN NON-GOLFERS

Golf Spectating and Health

Spectators at the majority of sporting events are restricted to a designated seat. In contrast, spectators at golf events are able to move with relative freedom around the many square miles of field of play. Over 80% of spectators at professional tournaments achieve daily recommendations for physical activity, walking on average >11500 steps per tournament day¹⁷. Methods for promoting physical activity among spectators, such as dedicated walking routes at major events, have been successful¹⁸. Spectators may increase their physical activity following a golf tournament, suggesting that golf tournaments can have a health-promoting legacy¹⁸.

Golf on Prescription

Pilot schemes in the United Kingdom enable health practitioners to refer non-golfers to 'Golf on Prescription' programmes. These programmes were designed dually as

opportunities for lifestyle education and to coach golf for beginners. Participants experienced a 3-fold increase in weekly physical activity, and reported improved self-esteem and mood¹⁸. Taking up golf can therefore be an effective way of increasing physical activity, improving mental wellbeing, and promoting participation in the sport.

Vocational Golf and Health

The health benefits of golf may be extended to individuals working in the golf industry. Caddies walk the course alongside their golfer carrying equipment weighing >10kg and providing expert advice. They work at courses across the globe and are also employed by most professional golfers. Caddies gain vocational health-enhancing physical activity, often taking more steps per round than their golfer¹². There is a limited body of research specifically investigating the long-term health benefits of caddying and for other persons (for example

greenkeepers and maintenance staff), but it is likely they are gaining health benefits from walking in a green environment.

In summary, the health benefits of golf are not limited to those individuals who choose to play the sport. Promoting golf to non-golfers, attending golf tournaments, and working on the golf course can all be health-enhancing. It is rare for sports to have health benefits to non-participants, and policy makers could consider advocating golf as an opportunity to promote wider population health (Figure 5).

GOLF AND ACCESSIBILITY

Golf and Disability

As a stationary ball sport, golf can be played by persons with almost any disability. Additional accommodations, such as guides for visually impaired golfers, and specialised equipment, further promote accessibility¹⁸. Using the handicap scoring system golfers with and without disability can share the same field of play. The Golf for the Disabled (G4D) Tour is a worldwide tour for golfers with a disability, and along with awareness raised by famous ambassadors, the promotion of golf as a universally accessible sport is increasingly widespread.

Golf for Older Adults

Unlike other popular sports, golf can continue to be safely played into later life. 42% of golfers are older than 60, and amateur golfers play most frequently after retiring³. Engaging in golf can provide specific benefits to the older adult^{12,18,19,20}.

- Physical Health
 - Improved balance, gait, and reduced risk for falls
 - Preservation of bone strength
 - Preserved muscle strength
- Mental Health
 - Reduced risk of social isolation
 - Improved mood in people with dementia
 - Improved cognitive/brain function

The WHO recommends that older adults do at least two sessions of resistance training per week⁸. Walking the golf course whilst carrying or pushing equipment can provide a combination of aerobic exercise and resistance training for older adults.

CONCLUSION

Golf can provide moderate to vigorous intensity aerobic physical activity. The numerous formats of golf, alongside the

various modifications that can be made, make the sport accessible for persons of all ages and abilities. There is convincing evidence of the health benefits of physical activity, and of golf's specific positive impacts on physical health and mental well-being. The best available evidence suggests that golfers live 5 years longer than non-golfers. Playing golf contributes to a happier, healthier, and longer life. Medical practitioners, policy makers and individuals can promote golf as a source of health-enhancing physical activity for all.

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