



# The therapeutic value of cycling

A resource for healthcare professionals



# INTRODUCTION

**Cycling can make people feel healthier, happier and better connected to their communities. It can be easier than walking and a great way to start meeting the Chief Medical Officers physical activity guidelines. When we talk about cycling, we often think about a bicycle, but we can also cycle on unicycles, tricycles, e-cycles, quadricycles, recumbents, and other human-powered vehicles (HPVs).**

Disabled people and people living with long-term health conditions are much less likely to be engaged in sport and physical activity than the general population(1). Because of this they do not benefit from the many outcomes that participation brings about: improvements to physical health, mental wellbeing and the enhancement of social capital. Such inequalities have led to a growing interest in how sport and physical activity might be utilised for therapeutic means and ends(2). The intention of this guide is to support and inform such work. It has been produced by occupational therapy students from Derby and Sheffield Hallam University while on a clinical placement learning about the value of sport and physical activity when used therapeutically. The occupational therapist from Sport for Confidence supported and supervised throughout the process of the guide and worked in collaboration with Wheels for Wellbeing, Sheffield Cycling 4 All, British Cycling, Cycling UK and Sheffield Health and Social Care NHS Trust.

This guide is intended to be a starting point for thinking about and planning how to use cycling for therapeutic purposes, and includes an assortment of ideas, suggestions and resources. The guide is written primarily for occupational therapists, but it may also be of use to other health professionals, sports coaches, and cycle groups. Central to the practice of occupational therapy is an interest in the relationship between activity participation and health and wellbeing.

Occupational therapy practice involves utilising a range of activities for assessment and intervention, often through grading (e.g., grading interventions simply means increasing or decreasing the difficulty of the intervention based on how the person is responding to it), adapting, and modifying the activity to ultimately enable meaningful participation for those who wish to take part.

It is therefore considered a priority that occupational therapists, and anyone else involved in using sport and physical activity for therapeutic means and ends, consider sporting activities for their therapeutic potential role in enabling people with a range of health conditions to live a more active lifestyle(3).

Although we feature a range of cycles and cycling projects which do things in particular ways in this guide, we encourage grading and adaptation of both the cycle and the environment your client is in. For example, if an occupational therapist was working with a client to try out cycling for the first time, they might want to initially try the cycle out one to one or with a trained instructor before introducing them to a group context or consider cycling in a traffic free environment.

Additionally, we would also like to emphasise that practice must always be client-centred in terms of activity preferences, interests, and values.

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## What is cycling?

**Cycling involves pedalling a cycle, which is a one, two, three or more wheeled vehicle, usually powered completely by human energy, but can be aided by electricity.**

We often think of two-wheeled bicycles when we talk about cycling. Cycles like three-wheeler trikes for example, are typically more stable and the need for balancing is taken out of the equation, enabling many more people to participate. Side-by-side tandems, where two riders can chat while sharing pedalling on the same cycle, are also very sociable.

Cycles can be built or adapted to have electronic assistance, making it faster and easier for riders to get around. There are a range of cycles and trikes to suit people with different needs, for example cycles which can be powered by the hands, and wheelchair trikes.

Cycling is brilliantly versatile. It can be used as recreation, for example cycling around a park, touring and leisure trips. Cycling can be used for many short journeys, such as shopping or to the GP. It can be done as a sport, whether mountain biking, on the road or in a velodrome.

## How do I get started?

Start by thinking about your client:

- Rule cycling in, not out! Do not rule out cycling for anyone because of their health condition before checking with others in the cycling community, also refer to the consensus statement from Sport England [here](#).
- Carefully plan, grade, and adapt your cycling intervention to make sure it's as accessible and realistic as possible, exploring any barriers.
- Think about what it is about cycling that is motivating your client and focus the intervention on that. If it's travel, then design your first ride around getting from a to b. If it's fun, then pack a picnic in the cycle basket! If your client wants to get fitter, see if you can use a Fitbit or other tech to make a record of their achievements, however small they might be.
- Choosing your cycle: this is probably the most interesting bit. Have a look at our guide to cycles at the end of this guide to get an idea of what is out there. If there is a local accessible cycling project this would be a great place to try them out.
- Is this the first time this client is riding a cycle, or did they ride as a child, or before their health changed? If they have tried it before they might feel more confident, but equally it could also be more of an emotionally charged experience.
- Talk through any worries your client might have about cycling – if they are nervous, use the Bikeability approach (see further information) e.g. lower the saddle so feet are on the floor.
- Think about the pedals: on most cycles you can switch to pedals with straps, and there are even pedals with inbuilt support for helping to keep people's legs straight while they cycle. If your client has an issue with pedalling – perhaps due to knee issues – shorter crank arms or pendulum cranks can be used to help reduce how far the knee needs to go around.
- Celebrate ALL achievements, however small they seem – small steps over time gradually become big leaps!
- Don't forget about security, be sure to purchase a good cycle lock

## Healthcare professionals, can we be role models?

**Everyone is a beginner when they start to cycle, heading out on your cycle for the first time can be exciting and nerve wracking at the same time.**

See [Cycling UK advise for beginners](#).

1. Make sure your cycle is right (ask for help [Cycling UK](#), consider [buying a secondhand cycle](#) or why not [rent or hire a cycle?](#))
2. Watch videos to help you learn how to [teach an adult to ride a cycle](#)
3. Start with a small target and practice in your local park or garden
4. Join a local cycling club (see further information)
5. [Learn how to fix a puncture](#) and [other basic maintenance](#)
6. Ride safe: [Here are a few tips](#)
7. Wear comfortable clothing
8. Make a cake stop
9. [Keep your cycle clean](#)
10. Have fun! Enjoy it and why not ride with your clients? (see further information for education and courses)



*" The cycling group has been fantastic; it has changed my life. "*

Participant at an inclusive cycling hub

## What equipment is needed?

- A cycle of your client's choosing.
- A helmet may or may not be worn depending on personal choice and potential health issues
- A high-vis or consider light/bright coloured clothing for visibility to other road users.
- Consider any tools you might need for adjusting the cycle, especially for getting the seat in the right position. A tyre pump, spare inner tubes & tyre levers may be useful in the event of a puncture. There is only a need to carry equipment and spares for repairs you can confidently and competently understand.
- A set of cones can be a fun and useful addition for practising corners, other manoeuvres and to provide riding challenges.
- You might need special pedals, and you can get covers for seats to make them more comfortable. Back supports are available.
- Some adapted cycles may require specific tools and training.



## How can you cycle with others?

Although many cyclists can cycle independently, and enjoy this, cycling can also be a very sociable activity. We have provided links to cycling groups at the end of this guide.

There are other ways to cycle socially, for example, some people like to use cycling as a way to travel, and this is known as 'cycle touring' – provisions can be packed on the back of the cycle, or a support car can join for the journey. In the UK increasing numbers of low and traffic-free cycle routes are being developed, for example along the wide paths of old railway tracks.

There are numerous cycling clubs, pathways into disability competition and of course cycling is part of the Paralympics and Special Olympics.

Cycling can also be done indoors, in velodromes or on exercise cycles, home turbo trainers also have become very popular and basic models inexpensive – allowing for more accessibility during winter months. In contrast, confident cyclists can head to the hills or trail centre for mountain biking, or to parks for BMXing. Cycling events – for example organised city centre rides – are a great way to celebrate cycling culture and meet new people.

*" What I love about cycling is being able to take off. "*

Ms. P, Cyclist

## How might I use cycling in my practice?

Cycling can be used in a whole host of ways for a diverse range of client populations, both for individuals and within groups. Cycling can help clients build skills, developing and maintaining motor, perceptual, cognitive and psychosocial skills. As well as physical and therapeutic benefits inherent in cycling, as a form of transport it also opens the door to other activities.

Many Disabled people find it hard to imagine they could ride a cycle, as two-wheelers are so dominant. Often, the realisation that they can cycle can be massively positive and enabling. Cycling can also enable access to other activities and roles: from giving people a vital means of transport, a sense of belonging within their community, to encouraging new skills like maintaining and repairing cycles, and volunteering as a ride leader.

## What is inclusive cycling and what might it offer?

Inclusive cycling is concerned with the practice of enabling a diverse range of people who might have difficulty using a conventional bicycle (however bicycles can still be a powerful therapeutic tool – see [case study 'Tommy' on page 11](#)). This may be through a process of adaptation and/or through the use of specialist cycles. Inclusive cycling enables Disabled people to cycle by removing barriers they face, such as cost and storage:

**Cost:** Non-standard cycles are typically more expensive than standard road cycles, with limited access to hire/loan.

**Storage:** "I ride a tricycle but can't cycle to my doctor's appointment because there is no secure and accessible parking for my trike at the hospital" (see further information to help overcome barriers).

**Wheels for Wellbeing** have produce a comprehensive guide which dedicates a chapter to inclusive cycling which can be accessed [here](#).



# ACTIVITY ANALYSIS

An activity analysis involves determining the typical demands of an activity, the range of skills involved in its performance, and the meanings that might be associated with it.

This activity analysis of cycling is provided as a starting point to prompt reasoning and thinking. It is not therefore exhaustive in terms of the many forms and environments in which participation in cycling could potentially be enabled. The activity analysis has been informed by both the International Classification of Functioning, Disability and Health(4) and the Occupational Therapy Practice Framework(5).

## Cognitive

- Oriented and awareness of surroundings, position of self in space, following route directions.
- Having the choice whether to participate in activity, choice of appropriate clothing, choice of the environment in which cycling takes place according to one's own interests, feelings, and abilities.
- Ability to perceive the effect of one's own motor, physical activity, as well as reflecting.
- Working and procedural memory used to process the activity, environment, and motor functions to successfully continue cycling. Long term memory used to bring the previous experience of cycling into consideration, awareness of possible hazards etc.
- Able to plan the activity in a suitable timescale, time of the day, plan the appropriate clothing, equipment, route direction.
- Ability to overcome barriers to cycling, physical environment, group integrity – problem solving.
- Success and development of self-esteem.

## Sensory

- Self-regulation: ability to control own activity, emotional and cognitive responses to achievement or failure.
- Tactile: ability to perceive bicycle's main contact points (saddle, pedals, grips, brakes, gears) and how much strength is required to use each of those components.
- Vestibular: ability to control own balance while the cycle is in motion or in stationary position, if on two wheels.
- Proprioceptive input and spatial awareness: awareness of one's own body parts' position while riding a cycle, and the physical environment in which the activity takes place.

## Neuro-musculoskeletal

- Postural support, considering how seating may need to be adapted or adjusted.
- Joint muscle and movement functions to enable grip of the handles (if using handles) and proprioception feedback from the use of pedals (if using pedals).
- Development of bilateral coordination.

## Speech

- Cyclist may need to communicate with pedestrians with their voice, especially if the cyclist does not have a bell.
- Participation provides the opportunity to communicate to other group members.

## Cardiovascular

- Sufficient blood pressure for movement and postural control.
- Respiratory functions to enable participation – although adaptations can provide full experience without exertion.
- Consideration should be given to physical endurance, aerobic capacity, stamina and fatigue with cycling being adapted accordingly.



## Relevance & Meaning

- Cycling can enhance personal identity and identity within a group.
- Participation individually or in a group is a form of physical activity and can enhance or maintain health, well-being and/or independence.

## Equipment & Resources

- Different types of cycles exist for individual needs.
- Appropriate clothing, footwear and helmets. If outdoors, appropriate for the weather.
- Useful to bring tools for adjusting the cycle to fit the client, and puncture repair equipment.

## Space

- Exploration of the outdoors, and green spaces.
- Can be undertaken in areas with none or increasing levels of traffic according to capacity.
- Can be done indoors but requires a good amount of space so may need to be a specific cycling centre.

## (Motor continued)

- If using feet and hands to cycle – it requires the ability to unilaterally use the lower limb to propel the bicycle while maintaining the balance and control over handlebars using upper limbs bilaterally. Ability to unilaterally flex or extend the index finger to use the brakes (if brakes are on the handles).
- Variety of strength levels needed depending on the physical environment and type of cycling and cycle.
- Ability to continue movements required to cycle for a desired length of time, depending on the physical environment in which cycling takes place.
- Depending on the type of cycle used and adaptations – hip flexion and extension, lateral and unilateral hip abduction and adduction, knee flexion and extension, plantar and dorsi flexion of the foot. Shoulder flexion and extension, abduction and adduction, elbow flexion and extension.

## Motor

- Cycling requires the ability to plan fine and gross motor movements depending on visual cues of the physical environment changing as the cycling takes place.
- Cycling requires the ability to repeat the same movement causing the bicycle to propel, execution of the same movement and the ability to transfer from stationary to active movements.

## Social

- Cycling in a group / hub can provide the opportunity to develop social skills/interaction.
- Building and maintaining cycles is also a hobby which can lead to social connections.

## Sequencing

- Cycling involves various steps depending on the level of participation; maintaining a cycle involves technical skills i.e., upper body function for cleaning, taking the wheel off, repairing a puncture and use of appropriate tools.
- Physical cycling involves transfers on and off the cycle and hand and/or feet sequencing and bilateral control.

## Process

- Cycling involves initiating steps to cycle and is completed in a logical manner.
- The cyclist is required to focus on gross and fine motor skills, and grading, while being able to register and acknowledge the physical environment in which the activity takes place.
- Cycling enables development of processing skills through participation and leadership roles, and through turn-taking on circuits and using different cycles and trikes available at a hub.

## Social interaction

- Cycling initiates interaction with group members or facilitators and may involve various forms of communication.
- Personal space is maintained whilst riding for both safety and what is socially appropriate.
- Social interaction can be developed through participation at groups and hubs with other cyclists and facilitators.

# CASE STUDIES

To illustrate the therapeutic value of inclusive cycling for healthcare professionals, we have provided a range of case studies. Engaging in cycling can help clients achieve person centred goals and make a positive difference to people's lives.

*Please note that names and other identifying information in the case studies below have been changed to protect confidentiality.*



*“ Cycling activity really does work in providing wider benefits. Beneficiaries on our programmes consistently report improvements in their mental wellbeing, increased confidence as well improved physical stamina that transfers to other aspects of their lives. ”*

**Zoe Westerman, Cycling UK**

## Penelope

**Penelope is a 66-year-old woman, who lives with her husband and attends a local inclusive cycling group. She joined the group to enable her to spend more time with her grandson.**

Penelope has a diagnosis of a spinal cyst in her lumbar spine. The cyst lays on her sciatic nerve, causing her fluctuations of pain throughout the day, impacting on her ability to engage in activities of daily living. Before joining the cycling group Penelope struggled with balancing on a standard two wheeled bicycle. The cycling group temporarily loaned her a folding trike, which helped her initially. Through further exploration of the available cycles, Penelope has purchased her own E-assist recumbent trike that she has found is best for her. She uses the trike to attend the cycling group and for transport. She is now able to shop independently and enjoys rides with her husband and taking the dog out. The freedom her recumbent trike provides is of huge value to her life and offers motivation for her to stay fit and involved with her friends and family.

Cycling helps keep her active and happy, but in a way that minimises her flare ups and she no longer worries about her balance. Penelope wishes that health care professionals had recommended cycling to her earlier in her treatment so she could have benefitted from staying active sooner.

## Tommy

**Twenty-two-year-old Tommy enjoyed cycling as a child so during admission to a mental health unit, he began engaging in a weekly mountain biking group.**

He has a previous history of psychosis and continues to struggle with persistent negative symptoms affecting his motivation to engage in purposeful occupations. However, the mountain biking group helped him develop his fitness, confidence, and motivation. After being discharged he still engages with the group. He recently completed a six-week mountain bike course, his motivation has increased, and he is fully prepared when he is picked up for the sessions, demonstrating an improvement in his level of functioning. He also reports that being outside has positive effects on his mental health.

## Pete

**Pete is a 34-year-old male who has been diagnosed with a learning disability, he was referred to the occupational therapist in the community who used cycling as a therapeutic intervention.**

Pete attended the cycling session for 2 weeks and appeared to have difficulty keeping his feet on the pedals. He was able to steer and pedal independently but would have to keep stopping to reposition his feet. This was affecting his confidence as he was not able to cycle at a faster pace due to the fear of his feet sliding off the pedals. The occupational therapist purchased velcro straps to attach to the pedals to keep his feet securely on the pedals. Since then, Pete has grown in confidence with cycling and has even challenged his friends to a race or two.



## Pauline

Pauline is a 72-year-old woman who lives at home with her cat. She attends a local cycling group every week on Mondays and Thursdays. Pauline rides a "Berkele" trike (recumbent tricycle), which is pedalled using arms and legs. She loves this cycle as she feels she's working her whole body while feeling safe and solid on a low frame.

Pauline has a spinal cord injury, affecting her balance. However, she remains independent in her activities of daily living and her day-to-day life includes being very social and active. She lives in an older person's community and attends the cycling group with one of her neighbours. Pauline struggles with anxiety and worries about losing her ability to walk. Going to the cycling group suppresses her anxiety as she sees familiar, friendly faces and feels safe within the group. Cycling has supported her coping strategies and has helped improve balance and strength, which in turn has helped increase her walking ability.

Pauline's goal is now to purchase her own trike. She wants to go on a cycling holiday with her friend to explore the countryside. She said coming to the cycling group has given her the support and confidence to do this which didn't seem possible before.

*" It has given me a lifted outlook on life, helped me physically while being in a beautiful park. "*

*" Physical, mental and social... it helps all three! "*

## Eddie

Eddie is a 34-year-old man who attends a local inclusive cycling group. He was referred by his community therapist as part of his rehabilitation. Eddie worked as a joiner until he had a brain injury, after which he spent four months in hospital. The injury suddenly changed his life.

Eddie has reduced dexterity and weakness in his left upper limb. However, he is motivated to use it in function when cycling. Eddie also had reduced mobility which has improved since he began cycling. He rides a lowrider trike with a foot strap pedal on the left side to provide support.

Eddie reported his confidence has been the best outcome of cycling as it has increased his independence to go out alone and use public transport. Participating in the cycling group made Eddie feel positive about the future and it motivated him to aim to return to work and driving. It also empowered him to share his knowledge and experience with other group members.

## Hannah

Hannah, a 33-year-old woman, loves being physically active and previously engaged in netball, cycling, football and fitness classes. Hannah has a long-term neurological condition which has impacted her mental and physical health.

Hannah attends a cycling group regularly and uses a side-by-side trike with her supporter or partner and also uses a hand cycle independently to cycle around the park. Both cycling activities make her feel she is living in the moment.

Participating in the cycling group has enabled Hannah to perform an occupation that is important to her and given her routine and enjoyment. Being physically active is a big part of Hannah's identity and cycling has given her confidence in her abilities instead of focusing on the disabilities. Hannah finds walking difficult due to her condition and engaging in cycling has helped her regain muscle strength in her legs. Hannah has noticed benefits to her mental and physical health and is able to enjoy physical activity again.

*" Cycling has helped me to manage my anxiety. It's gone from 10, at it's worst, to 1. "*

A Cycling UK,  
Cycle for Health Participant



*" Cycling helped with my vision and cognition post brain injury "*

Cyclist

## Jessie

An occupational therapist account of the therapeutic value of cycling.

*“During my occupational therapy placement at Sheffield Cycling 4 All, I was able to see the value of cycling and explore how it can be used as an intervention tool. Cycling can be adapted and graded to meet individual needs and used holistically focusing on social, physical and psychological well-being. I observed cycling to be a meaningful activity in which participants reported increased functionality, independence, and a sense of belonging. The table highlights observations made during my placement, the skills used during a cycling activity and how this can translate into increased occupational performance.”*

DESIGN »	SKILL »	TRANSFERABLE LIFE SKILL EXAMPLES
Deciding to attend a session/ to cycle and what days, deciding what to wear	Empowerment Enabling choice Decision making Assertiveness	Increases an individual's ability to make personal life choices and gives them independence and control
Paying for the cycling session and equipment	Money management Counting Planning	Managing money to be able to pay bills and manage finances and budgeting.
Travel to the session/ cycling group	Planning Organising Time management Resilience Problem solving Emotional regulation Money management	Being able to plan travel to work/education or leisure activities  Increases independence doing this: e.g., using public transport instead of taxis and reduces financial burden.  Able to adjust and cope with stress of a 'missing bus'.
Gripping the handlebars/ ringing the bell, fastening the foot pedals/ helmet strap Using hand cycles	Fine and gross motor skills Dexterity Proprioception	Required for opening jars, applying makeup, brushing your hair.  Handwriting

*Continued >*

DESIGN »	SKILL »	TRANSFERABLE LIFE SKILL EXAMPLES
Talking to others in the group	Social norms Personal space Social interactions Relationship building Eye contact Confidence Communication Listening	Building friendships/ relationships in work/ education and personal lifestyle  Interacting with staff in a supermarket, ordering food in a cafe or communicating at healthcare appointments
Pedalling	Coordination Reciprocal movement Strength Balance Exercise tolerance Sequencing Sensory feedback	Skills required for walking Helps to maintain function in self-care occupations e.g. cooking in the kitchen; reaching to cupboards, washing and dressing
Cycling around a new area/place	Orientation Confidence Memory recall (directions to get back)	Increased confidence to travel to new places Helps with managing anxieties of being in a new environment Helps with remembering directions
Cycling in all weather conditions/ on different terrains	Sensory processing Resilience	Increases the ability to manage multiple sensory factors in an environment that a person will come across in day-day life and to identify coping strategies
Cancelled session	Emotional regulation Coping Problem solving Resilience	Helps an individual adapt to change at short notice and identify another task to do instead. E.g., cancelled hospital appointment/ hairdressers appointment/ job interview

# WHAT IS THE EVIDENCE-BASE?

Evidence on the therapeutic and health-giving benefits of cycling has been increasing over recent years.

Outdoor inclusive cycling has been shown to improve mental health, executive function(6) and increase sleep quality (7).

Specifically in a group context, outdoor cycling has provided benefits in motivation, social skills, belonging and identity(8) and enabled positive changes in mood and wellbeing(9).



PUBLICATION & COUNTRY OF ORIGIN	AIMS OF STUDY	PARTICIPANTS	DESIGN (DATA COLLECTION & ANALYSIS)	KEY FINDINGS
Ryu, Jung & Kim et al. (2020) Republic of Korea	To investigate the therapeutic effects of outdoor cycling and its benefits on physical activity in people diagnosed with Schizophrenia.	60 patients randomly assigned to 16 weeks of outdoor cycling or occupational therapy. This lasted for 90 minutes per session, once a week. Outdoor Cycling consisted of structured exercise programs and Occupational Therapy addressed daily living skills.	Randomised control trial. Primary outcome measurements were mental health variables, such as Brief Psychiatric Rating Scale, Beck's Depression Inventory, State and Trait Anxiety Inventory, Rosenberg. Self-Esteem Scale, Global Assessment of Functioning and executive function (Wisconsin Card Sorting Test, WCST). Secondary measures were the adherence and PA. PA was measured by responding to the Physical Activity Scale (K-PASE) and wearing a pedometer for 2 days.	Outdoor cycling significantly improved mental health and executive function in individuals with schizophrenia. Physical activity was significantly increased, measured by the pedometers. Outdoor cycling offers a safe and attrition-lowering intervention promoting mental health and physical activity(6).
Schnor, Linderoth & Midtgaard (2019) Denmark	To explore participation in a supervised group based outdoor cycling programme for people with mental illness. (10x10km over a five month period).	25 adult participants with a mean age of 40. Participants has a range of diagnoses' including; psychosis, depression, anxiety, personality disorder, and post-traumatic stress disorder.	Qualitative explorative study.	Four themes: (1) Reinvigoration, (2) Motivation through equal status, (3) Group commitment without focus on illness (4) The value of cycling(7).
Gray & Gow (2020) Scotland	To assess changes in mood and wellbeing to determine whether there were short-term benefits of participation when engaging in a 'Cycling without Age' initiative.	Forty-nine older adults (69% female; 67–100years old (M = 84.1, SD = 7.6)) living in care homes and supported housing environments were recruited. 29 participants in care homes lived with restrictive mobility and some form of cognitive impairment. Others were independently living.	Cycling Without Age (CWA) is an innovative activity in which trained volunteers take people out on specially designed trishaws to explore their local areas and communities 35 participants completed all measures; Warwick-Edinburgh Mental Wellbeing Scale and UWIST Mood Adjective Checklist immediately before a ride (baseline); they repeated the measures on completion of the ride (follow-up). Baseline and follow-up measures on a day in which they did not go on a ride.	Short-term positive changes in mood and wellbeing were reported as a result of participation in the Cycling Without Age initiative for older adults in care homes and supported living environments. Further research needed for long term benefits (9).

PUBLICATION & COUNTRY OF ORIGIN	AIMS OF STUDY	PARTICIPANTS	DESIGN (DATA COLLECTION & ANALYSIS)	KEY FINDINGS
Feighan & Roberts (2017) <sup>(10)</sup> England	Explore the personal meanings attributed to the occupation of cycling, with a view to providing occupational therapists and others with an understanding of its therapeutic potential.	7 participants of mixed gender.	Qualitative research - Participants who cycled regularly took part in semi-structured interviews.  Interpretative phenomenological analysis was used to interpret the data.	Three themes: <b>(1)</b> Altered mind-sets and emotions connected to cycling; <b>(2)</b> Belonging and connecting to others through cycling; <b>(3)</b> Assuming and maintaining the identity of a cyclist.  Key findings: Cycling altered participants' emotions. Cycling contributed towards personal identity and connection to others. Cycling has potential therapeutic value.
MacDonald, Jaszewski, Esposito & Ulrich, (2011). USA	The effect of learning to ride a two-wheel bicycle on the social development of children with autism spectrum disorder.	9 children with ASD - mean age 13.33	Qualitative: semi-structured interviews with parents.  All the children learnt to ride a cycle within an adapted cycling programme.	Two themes: <b>(1)</b> The generalisation of social skills and communication skills <b>(2)</b> Peer and family relationships  Positive social implications: Social skill generalisation and peer and family relationships  Learning motor skills impacted positively on social skills <sup>(8)</sup> .
Kelly, Kahlmeier & Götschi et al, (2014) <sup>(11)</sup>	A systematic review and meta-analysis of the reduction in all-cause mortality from walking and cycling, adjusted for other physical activity.	Cycling results cover 8 results from 7 studies.	Systematic review and meta-analysis of existing studies. Estimates are based on information from 187,000 individuals.	Results showed a reduction risk of all-cause mortality of 10% for cycling. The analysis shows that walking and cycling have population-level health benefits even after adjustment for other forms of physical activity. Public health approaches would have the biggest impact if they are able to increase walking and cycling levels in the groups that have the lowest levels of these activities.

*" There is a lot more to cycling than just the exercise, it offers a lot more to people who take part. "*

Nicholas B. (British Cycling)



*" Age isn't a big factor in cycling, it's the community around it finding it meaningful. "*

Jakub,  
Occupational Therapist



PUBLICATION & COUNTRY OF ORIGIN	AIMS OF STUDY	PARTICIPANTS	DESIGN (DATA COLLECTION & ANALYSIS)	KEY FINDINGS
<p>Inckle, Kay (2020)<sup>(12)</sup></p>	<p>This paper draws on qualitative interviews with Disabled cyclists to explore the physical and mental health impacts of cycling for Disabled people. It also highlights the broader implications for wellbeing in terms of independence and autonomy and the deficit of knowledge about cycling for Disabled people among health professionals and policy makers.</p>	<p>7 cyclists (3 female and 4 male, age range 31-64) who identified as having a physical disability, impairment or mobility impairment.</p>	<p>Qualitative interviews. Interviews were conducted face-to-face and online, they lasted between 38–78 minutes, they were recorded then transcribed verbatim into word documents. An in-vivo approach was used for analysis.</p>	<p>Three areas are discussed in detail:</p> <ol style="list-style-type: none"> <li>(1) Physical activity/exercise and physical health</li> <li>(2) Mental health and wellbeing</li> <li>(3) Health professionals, policy, and practice</li> </ol> <p>For example:</p> <p>All participants described cycling as easier than walking or wheelchair propulsion and for most it was their main form of mobility.</p> <p>Participants highlighted positive impacts including: the direct physiological impacts of physical activity, stress-relieving functions, and promoting feelings of autonomy, freedom, and independence.</p> <p>None of the participants had ever been recommended cycling by a health professional.</p>
<p>Wheels for Wellbeing (2022)<sup>(13)</sup></p>	<p>Disability &amp; Cycling Report of 2021 National Survey Results</p>	<p>Two hundred and forty-five participants – 82% of respondents were Disabled people and nearly 14% responded on behalf of a Disabled person.</p> <p>87% owned their own cycle and just over three quarters cycled once a week or more.</p> <p>75% of those who did not own a cycle accessed cycling via inclusive cycling sessions.</p>	<p>Participants completed a mixed-methods survey (binary, multiple choice and free-text/qualitative answers) between June and the end of August 2021.</p>	<p>The COVID-19 pandemic and lockdowns had a range of impacts on Disabled cyclists: 39% cycled more or began cycling for the first time, and just under one third (28.75%) cycled less.</p> <p>63.78% of respondents reported that cycling was easier than walking.</p> <p>The most frequent barriers to cycling include: inaccessible infrastructure (53.28%), lack of parking or storage for their cycle (34.93%), and the cost of a cycle or adaptations (32.75%)</p> <p>Enablers to cycling: accessible cycle infrastructure, subsidies for non-standard cycles, recognizing cycles as mobility aids and reducing the speed and quantity of traffic in residential areas.</p>

# TYPES OF CYCLES

There are a huge range of adapted cycles to meet specific needs and capabilities, as well as for different contexts, e.g. road cycling and mountain biking.

A few examples are shown here:



## Wheelchair Tandem

This tandem cycle is ideal for wheelchair users, especially people who cannot transfer. The wheelchair is reversed onto the tipping platform, and straps attach the chair firmly and safely in place. A carer, friend or family member then cycles, enabling the wheelchair user to participate in the activity and enjoy the wind and the view.



## Side By Side Cycle

This tandem cycle involves two riders sitting side by side. Because of the side-by-side setup, it is a sociable cycle and a gentle way to access cycling for the first time as both riders can check in with each other. The cycle also gives a good amount of flexibility for the second rider. One-person (usually the supporter) steers and pedals.



## Berkel Trike

The Berkel Trike was designed for rehabilitation and can be integrated with a FES (Functional Electrical Stimulation). It is a fantastic cycle because it allows riders to seamlessly power the cycle in two ways. One way is the conventional leg pedalling (foot pedals), and the other is from the arms and hands (hand-cycle). Moving the hand-cycle part of the Berkel also moves the foot pedals, so that someone paralysed from the waist down or with limited lower limb usage would be able to engage their full body, activating muscles in their legs that they are not able to use without it.



## Recumbent Tricycle

This cycle reduces stress and strain on muscles and joints in comparison to two-wheeled bicycles. The wider, lower seat offers a range of benefits for different people, for example enabling people with balance issues to confidently participate and allowing people with groin injuries to cycle.



## Handcycle

On this cycle the rider uses their upper limbs to power the cycle. It is a good option for wheelchair users who can transfer easily - although it requires a good amount of arm strength to get up hills! Chair users who can not transfer or want to save time may also be able to get hold of clip-on attachments for their wheelchairs. The clip-ons also come in an electric-assist version.



## Recumbent/Semi-Recumbent

This cycle provides the same exercise and activity effects of a regular bicycle, with increased comfort and balance. The design allows riders who may struggle with proprioception to remain balanced and grounded, which is unlikely on a bicycle.



## Two-Wheel Bicycle

Bicycles provide people with invisible disabilities and mental health issues the opportunity to engage in cycling as an occupation. Bicycles usually have adjustable seats to allow for a more comfortable ride. Like most cycles, they also have gear systems which allow users to tackle hilly inclines with more ease. You can get bicycles with dropped crossbars to make it easier to step on and off the bicycle.



## Two-Wheel Tandem Bicycle

This cycle enables people with visual impairments to engage in cycling. The supporter, friend or family member sits on the front seat to steer and pedal whilst the person with the visual impairment pedals from the back.



## E-Cycles

Many cycles now come with e-assist options. This adaptation allows for better management of fatigue as the e-assist enables easier riding up steep and long hills. Additionally, e-cycles can reduce anxiety for people who struggle with fatigue as e-assist provides immediate power which users can apply easily.

All images taken with permission from Sheffield Cycling for All.  
Retrieved from <http://sheffieldcycling4all.org/>

# FURTHER INFORMATION & USEFUL LINKS

## Cycling Networks & Information

Inclusive cycling, a wealth of information:

[Campaigning for inclusive cycling, Wheels for Wellbeing](#)

Fantastic stories of inclusive cycling: [Stories – Sheffield Cycling 4 All](#)

Cycling UK (beginners guides, groups, routes, cycling for health projects:

[Cycling UK | The UK's cycling charity](#)

British Cycling (general info, education, groups): [Home - British Cycling](#)

Education and courses: [Education & Courses – British Cycling](#)

## Cycling Hubs & Hire

Inclusive cycling hubs outside London:

<https://wheelsforall.org.uk/locations>

<https://sheffieldcycling4all.org>

[everybodyscycling.org.uk](http://everybodyscycling.org.uk)

Inclusive cycling hubs in London:

<https://cyclingforall.org/cycling-sessions/venue-list/>

Inclusive cycle hire: <http://charlottestandems.weebly.com/other-organisations.html>

Tandem hire: <https://charlottestandems.co.uk/>

Trike loan scheme: [Trikes – Cyclescheme](#)

## Cycling Groups

Community Cycle Clubs: <https://www.cyclinguk.org/community-cycle-clubs>

Cycle for Health: <https://www.cyclinguk.org/community-outreach/health>

Free cycling festivals: <https://www.letsride.co.uk/>

Woman only rides: <https://www.letsride.co.uk/>

Teach your child to ride: <https://www.letsride.co.uk/>

Black cyclists' network: <https://www.blackcyclistsnetwork.com/>

Asian cycling club: <https://www.cyclinguk.org/cycle-magazine/brothers-bikes>

Women of colour cycling collective: <https://womenofcolourcycling.org>

## Cycle Training/Cycle Routes

Cycle training:

<https://www.bikeability.org.uk/about-cycle-training/cycle-training-for-adults/>

Cycle routes: [Home - Sustrans.org.uk Routes](#) | [Cycling UK](#)

Cycle journey planner:

[CycleStreets: UK-wide Cycle Journey Planner and Photomap: Cycle journey planner](#)

## Training, Education & Courses

Advice for beginners, cycling made easy, community cycling clubs, cycling projects using behavioural change techniques: <https://www.cyclinguk.org/beginners>

Bikeability: [Bikeability | Cycle training for everyone delivering better and H training](#)

Education & Courses: [Education & Courses – British Cycling](#)

## Competition

Disability and para-cycling: [Disability and para-cycling \(britishcycling.org.uk\)](#)

## Other

A tool to enable local groups to identify where changes are needed:

[Widen My Path – suggest more space for physical distancing](#)

Cycling online encouragement platform and app, local promotion and good old human interaction: <https://www.lovetoride.net/uk>

Innovative cycling projects: [Essex Pedal Power | Active Essex](#)

An occupational therapy resource on inclusive cycling: <https://inclusive-cycling.org/>

Quest assist people of all ages and abilities to discover greater freedom through movement: <https://quest88.com/>

Get Cycling CIC aims to ensure that anyone who wants to cycle, has the opportunity:

<https://www.getcycling.org.uk/>

'Everybody's cycling' aims to provide opportunities for anyone and everyone to try cycling: <https://www.everybodyscycling.org.uk/>

Mountain Bike Trail Therapy Programme, an example of great work:

[Mountain Bike Trail Therapy – DMBinS Can mountain biking help with Mental Health issues? – YouTube](#)

## FURTHER INFORMATION & USEFUL LINKS

### Physical Activity Information for Healthcare Professionals

UK Chief Medical Officers' report, physical activity guidelines:

[Physical activity guidelines – GOV.UK \(www.gov.uk\)](http://www.gov.uk)

Cycling and walking investment, grant funding, research and infrastructure case studies: [Cycling and walking – GOV.UK \(www.gov.uk\)](http://www.gov.uk)

Consensus statement: [Physical activity benefits outweigh risks for people with long-term health conditions | Sport England](#)

Moving Medicine: [Homepage – Moving Medicine](#)

### Information Overload?

Just contact Sheffield Cycling 4 All.

They are always happy to support anyone interested in cycling:

<http://sheffieldcycling4all.org/contact> or email: [info@sheffieldcycling4all.org](mailto:info@sheffieldcycling4all.org)

Alternatively you can phone or text 07565 695296 or 07922 183338, Monday to Friday, 9am-5pm.



## SUPPORTED BY OUR PARTNERS



## References

1. Activity Alliance (2022). Annual Disability and Activity Survey: 2021-22. Loughborough: Activity Alliance.
2. Sport England. (2021). Uniting the Movement: A 10-year vision to transform lives and communities through sport and physical activity.
3. Pettican A, Speed E, Kilbride C, Bryant W, Beresford P (2021) An occupational justice perspective on playing football and living with mental distress. *Journal of Occupational Science*. 28(1):159–72.
4. World Health Organisation. (WHO) (2001). International Classification of Functioning, Disability and Health. In: International Classification of Functioning, Disability and Health. 2001. p. 1–3, 16, 123–4, 168–70.
5. American Occupational Therapy Association, (AOTA). (2014). Occupational Therapy Practice Framework: Domain and Process (3rd Edition). *Am J Occup Ther* [Internet]. 2014;68(Supplement\_1):S1–48. Available from: <http://dx.doi.org/10.5014/ajot.2014.682006%5Cnhttp://ajot.aota.org/Article.aspx?doi=10.5014/ajot.2014.682006>
6. Ryu, Jung, J. H., Kim, J., Kim, C.-H., Lee, H.-B., Kim, D.-H., Lee, S.-K., Shin, J.-H., & Roh, D. (2020). Outdoor cycling improves clinical symptoms, cognition and objectively measured physical activity in patients with schizophrenia: A randomized controlled trial. *Journal of Psychiatric Research*, 120, 144–153. <https://doi.org/10.1016/j.jpsychires.2019.10.015>
7. Schnor, Linderoth, S., & Midtgaard, J. (2019). Experiences with Participation in a Supervised Group-Based Outdoor Cycling Programme for People with Mental Illness: A Focus Group Study. *International Journal of Environmental Research and Public Health*, 16(4), 528–. <https://doi.org/10.3390/ijerph16040528>
8. MacDonald, Esposito, P., Hauck, J., Jeong, I., Hornyak, J., Argento, A., & Ulrich, D. A. (2012). Bicycle Training for Youth With Down Syndrome and Autism Spectrum Disorders. *Focus on Autism and Other Developmental Disabilities*, 27(1), 12–21. <https://doi.org/10.1177/1088357611428333>
9. Gray, & Gow, A. J. (2020). Cycling Without Age: Assessing the Impact of a Cycling-Based Initiative on Mood and Wellbeing. *Gerontology and Geriatric Medicine*, 6, 233372142094663–2333721420946638. <https://doi.org/10.1177/2333721420946638>
10. Feighan, M., & Roberts, A. E. (2017). The value of cycling as a meaningful and therapeutic occupation. *British Journal of Occupational Therapy*, 80(5), 319–326. <https://doi.org/10.1177/0308022616679416>
11. Kelly, Kahlmeier, S., Götschi, T., Orsini, N., Richards, J., Roberts, N., Scarborough, P., & Foster, C. (2014). Systematic review and meta-analysis of reduction in all-cause mortality from walking and cycling and shape of dose response relationship. *The International Journal of Behavioral Nutrition and Physical Activity*, 11(1), 132–132. <https://doi.org/10.1186/s12966-014-0132-x>
12. Inckle, K. (2020). Disability, Cycling and Health: Impacts and (Missed) Opportunities in Public Health. *Scandinavian Journal of Disability Research*, 22(1), 417–427. DOI: <http://doi.org/10.16993/sjdr.695>
13. Wheel for Wellbeing (2022) Disability & Cycling Report of 2021 National Survey Results. London. WfW. Disability-and-Cycling-Report-of-2021-national-survey-results.pdf ([wheelsforwellbeing.org.uk](http://wheelsforwellbeing.org.uk))



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