

COMMENTARY

Increasing the Visibility of Invisibly Disabled Cyclists: A Personal Account from a Deaf Cyclist

Florence Grieve

florencegrieve@yahoo.co.uk

Visibility and representation are necessary factors in supporting Disabled people's access to cycling. The visibility of Disabled cyclists in policy, such as images of non-standard cycles, is paramount to ensuring Disabled cyclists are considered in practice. If Disabled people see themselves reflected in the cycling population, this will encourage participation. However, the issue of visibility and representation becomes more complex when it comes to cyclists with invisible disabilities. Most ride a standard two-wheeled bicycle and therefore will be exempt from the specific barriers faced by non-standard cycles. Additionally, because cyclists with invisible disabilities are, by definition, less visible, their experiences are often less represented. Both factors contribute to limited understanding of how the health and wellbeing benefits of cycling for people with invisible disabilities can be realised. In this paper, I begin to address this gap by reflecting on my personal experience as a cyclist with an invisible disability. Through charting the benefits and the barriers, I conclude that further research is needed to understand how to best facilitate access to cycling for invisibly Disabled people.

Keywords: Disability; deafness; invisible disabilities; women; cycling; active travel

Introduction

It is unsurprising that the image of me as a cyclist has been challenging to reconcile. As Marian Wright Edelman (*Miss Representation* 2011) articulated, 'You can't be what you can't see.' Although someone has to be the first, Edelman herself was the first Black woman admitted to the Mississippi Bar (Dreizler 2022); the sentiment nevertheless expresses the importance of visibility and representation. And when it comes to Disabled cyclists, this is as important as ever. The cyclist has traditionally been portrayed as a sporty risk taker (Steinbach et al. 2011) or the stereotypical image of the MAMIL (middle-aged men in Lycra) (Aldred, Woodcock & Goodman 2016). As such, there is a noticeable absence of Disabled cyclists in policy and strategy. An audit of over 50 London transport and cycling strategies (Andrews, Clement & Aldred 2018) found that only 2% of all images of cycles were a non-standard cycle. There are several types of non-standard cycles, which are cycles that differ from two-wheeled bicycles, such as trikes, tandems, handcycles and cargo bikes. Furthermore, Disabled cyclists were entirely

absent from Public Health England's 2016 active travel briefing for local authorities (Inckle 2020), an oversight corrected in the Department for Transport's (2022) active travel toolkit for local authorities. And yet in 2024, the report, "Breaking The Cycle" (Aldred & Pedroso 2024), found that of the 100 images analysed by the researchers, none depicted a person with a visible disability.

This is important to address because visibility and inclusive design go hand in hand to ensure the needs of Disabled cyclists are met (Andrews, Clement & Aldred 2018). If Disabled cyclists are invisible in policy documents, this is likely to result in infrastructure which doesn't consider Disabled cyclists' needs. Inaccessible infrastructure was the most frequent barrier (53.28%) reported by respondents in Wheels for Wellbeing's (2021) Disability and Cycling National Survey. Examples of inaccessible infrastructure include physical barriers such as gates and A-frames which were not designed with non-standard cycles in mind. In fact, barrier removal along the National Cycle Network has been a key approach to improving accessibility for Disabled cyclists who use non-standard cycles, as well as other path users, such as those with pushchairs (Walk Wheel Cycle Trust 2020). The need for accessible infrastructure goes hand in hand with the importance of visibility and representation. If infrastructure is not accessible, Disabled people will have less access to cycling, resulting in a perception that Disabled people do not cycle. But if Disabled people are not perceived as cyclists, then infrastructure will not be designed with Disabled people in mind.

The issue of representation becomes more complex when it comes to cyclists with invisible disabilities. I use the term "invisible disabilities" to refer to disabilities, impairments or health conditions that may not be immediately obvious or apparent. Other terms are also widely, and interchangeably, used, such as non-visible (Disability Unit 2020) and hidden (Hidden Disabilities Charity n.d.). I, like a number of deaf and hard of hearing people, consider myself to have an invisible, or less visible, disability (Deaf Umbrella 2024). However, other deaf people may not identify with this term, or it may vary depending on the context they are in. For example, if my hearing aid or cochlear implant is visible, or when I communicate in British Sign Language, I am more visible than at other times. I use the term 'deaf and deaf cyclists' throughout, as this is the term I use to describe myself, unless referring to a specific study, in which case I adopt their language.

Most people with invisible disabilities will ride a standard two-wheeled bicycle (Wheels for Wellbeing n.d.), and therefore it won't be immediately obvious that we are Disabled. This is clearly demonstrated in the hidden disability's illustration from Wheels for Wellbeing (n.d.), which shows images of four cyclists riding standard two-wheeled bikes, and readers are challenged to 'spot the odd one out.' Whilst it is true that cyclists with invisible disabilities, who ride two-wheel bikes, are exempt from barriers specific to non-standard cycles, there is a lack of research when it comes to understanding the barriers we do face. The aforementioned Wheels for Wellbeing survey goes some way towards painting a picture, with some barriers unique to invisible disabilities mentioned such as "not being able to find helmets and/or clothing that was suitable for those with cochlear implants or with autism-related sensitivities." It also includes barriers that could apply to both visibly and invisibly Disabled cyclists, such as concerns that cycling will affect Disabled people's entitlement to benefits.

Along with the need to remove barriers of all kinds to make cycling more accessible for Disabled people, a unique challenge for invisibly Disabled cyclists is the somewhat paradoxical need to increase our visibility. As earlier stated, Disabled cyclists need to be represented in order for our needs to be met. This is the same for invisibly disabled cyclists, but what it means to be 'seen' will necessarily be different. Whilst images of invisibly disabled cyclists riding standard two-wheeled bikes will look the same as images of non-disabled cyclists, there are barriers to our participation that must be addressed. In the following paragraphs I focus

particularly on the needs of deaf cyclists by charting my relationship with cycling as a deaf woman who identifies as having an invisible disability whilst on my bike. I explore the limited research landscape of deafness and cycling and call for further research, led by and centred around diverse deaf perspectives.

The experience of deaf cyclists

When I chart my relationship with cycling, I can see that the feeling of not fitting in with my peers has been a common theme. In primary school I didn't achieve Bikeability level two, which left me with the feeling that, even if it wasn't true, I was the only one who hadn't managed to reach the roadworthy standard. This contributed to the feeling that perhaps sport and exercise weren't for me, or I wasn't right for them.

Bikeability is a Department for Transport-funded cycling training course offered to pupils in England. I took part in Bikeability at the time it was introduced, and therefore, if I retook it today, perhaps my experience would be different. The Bikeability Trust (2022a) reported that:

“the proportion of Bikeability training delivered to children and young people who have been identified as having SEND [Special Education Needs and Disabilities] is not representative of the number of children that the Department for Education lists with SEND.”

Therefore, they conducted “18 pilot projects to improve the access to and experience of cycle training for individuals with SEND” (ibid.). As a result of this pilot, in 2023 the Trust introduced a mandatory CPD module for Bikeability instructors (ibid.). Developed in partnership with Wheels for All, the training aims to “increase their [instructors'] level of confidence and knowledge in training children with SEND to cycle.” According to their Monitoring and Evaluation Report (The Bikeability Trust 2025), 9% of riders participating in Bikeability training in 2024/25 had SEND, compared to 1.3% in 2019/20. It's not just the numbers that matter; testimony from instructors suggests there has also been an uplift in the necessary skills to support SEND riders. Captured in their Impact Report (The Bikeability Trust 2022b), instructor feedback on the CPD modules includes statements like, “I feel much more enlightened and confident in delivering SEND training,” and “Terrific module: very rider and instructor friendly [and] supportive.”

As I started secondary school and grew into my teenage years, something shifted. I began to make increasingly longer journeys along my local stretch of the National Cycle Network (NCN) Route 4, which follows the Kennet and Avon Canal. A completely car-free route (along my section), I was afforded the freedom of not needing to rely on my unreliable hearing, and instead, I focused on enjoying the journey. This is an experience echoed by participant Michael in Beale and Brickell's (2024) interviews with four deaf countryside cyclists: “Even though I'm deaf I would say I don't ever feel like it holds me back when I'm cycling away from roads or anywhere humans might be. It's sort of like just feeling it's me by myself, I don't have to worry about what I can hear.”

Unlike Michael, there were other cyclists and walkers along my routes because the Kennet and Avon Canal is a well frequented path, especially during the summer months. I navigated this by having my cycling companion—at that time, my mum—act as my ears. I could stay in one position, ahead of her and on the left of the path, whilst she would listen out for other cyclists and react accordingly. Perhaps it was removing the need to rely on my hearing that marked the increase in my enjoyment of cycling and the wider wellbeing benefits this brought.

Back when I was struggling with the social aspects of school, namely persistent social exclusion during breaks and lunchtimes, I remember being asked by the SEND team what my ideal day would look like. I described an active day including a cycle ride much like the

one described above. Whilst school was noisy and I struggled to follow my peers' conversations, cycling afforded me a sense of quiet, focus and connection to the natural world, which boosted my wellbeing.

It was therefore a surprise to read Goodwin, Hogervorst and Maidment's (2023) conclusion that there is "currently no robust evidence that physical activity interventions for adults with hearing loss improve physical function or psychosocial wellbeing outcomes." It is worrying that narratives such as these, shaped also by the negative framing of hearing loss as "a highly prevalent burden of disease" (Goodwin, Hogervorst & Maidment 2023), are some of the few perspectives we have on deaf people's experiences in sport and exercise; this may go some way towards explaining why I struggle to reconcile the view of myself as a cyclist. It is worth noting that the strict eligibility criteria resulted in only two papers being included in this systematic review (*ibid.*), and, as a result, many qualitative and quantitative researcher papers were not included in the findings. The authors (*ibid.*) do acknowledge that "further high-quality research in this area is needed."

An earlier paper by Irish, Cavallerio and McDonald (2018) concurs that research into the experiences of deaf athletes is limited, especially from first-person perspectives. It is paramount that the benefits of physical activity, and for the purpose of this discussion, cycling in particular, are recognised and represented in the literature. This is important because the literature suggests that deaf people are less physically active than their hearing counterparts. A 2013 survey (EFDS Lifestyle Survey 2013) found that only 9.7% of 253,970 deaf people in England participate in 30 minutes of moderate-intensity activity once a week; this figure was the lowest percentage across a range of disabilities. A more recent survey (Sport England Active Lives Survey 2023) found that "55% of people aged 16+ with a hearing impairment were inactive (less than 30 minutes a week) compared to 15% of people without a disability."

As Beale and Brickell (2024) demonstrate, when deaf people are afforded access to cycling, it does have a positive impact on our wellbeing. As James describes, "Bikes make me happy and like I told you earlier on life is harder for deaf people. So cycling is an outlet. Because I'm deaf I then get frustrated; all deaf people do. When I ride my bike, it improves my temperament." Reading about the joy that cycling brings these four young deaf men is testament to the positive effects of cycling.

I was lucky to grow up in an environment where the importance of role models was recognised, as corroborated by Cawthorn et al. (2016), Interlandi (2005), and Joy, Ledger and Duncan (2025). Those around me, including my family and my school, actively sought positive deaf role models. An Evelyn Glennie concert showed me that deaf people can be successful musicians, and my support assistant and I spent hours making a scrapbook of deaf people throughout history, as well as contemporary success stories. There were musicians, activists, and many others, but I don't remember any deaf sports people in my scrapbook. A UK Deaf Sport (2022) report suggests that this continues to be the case for teenage girls today; of the 18 deaf teenage girls they spoke to, only one could name a deaf female athlete.

The above discussion partially explains why, when looking back on my relationship with sport and exercise as a child and young person, I adopted a self-critical view. Aside from my perceived "failure" at Bikeability, there was the time I was hit in the face with a rounders bat because I didn't hear the instruction to stand behind the line. Or the time my bike and I toppled into the canal because my poorer balance and junior cycle skills weren't equipped for the puddle-covered narrowing in the path. It took an outside perspective to reframe these setbacks as failures in accessibility and inclusion, rather than my individual "faults." Taking the last incident as an example, it was the puddle-covered narrowing in the path that wasn't equipped for me. As the outsider put it, puddling isn't inevitable with good drainage, and reflecting on this, I can see that a wider path would have helped with

keeping myself balanced. As someone who views Disability through the Social Model, it is difficult to admit (even to myself) that I automatically framed the fall through a Medical Model lens. However, by calling this out, I hope to demonstrate how engrained this perspective is. If I, as a Disabled person critically engaging with this topic, fall into this way of thinking, then it is convincing that decision makers, designers, and other professionals with the skills and power to make a difference may draw the same conclusion. This brings into sharp focus the need for further research to understand deaf people's relationship with cycling and barriers to participation so that we can implement appropriate strategies and interventions.

Cycling within four walls

Easy access to the NCN was a key factor in the positive development of my relationship with cycling. I am not alone in this regard. According to Heesch, Sahlqvist and Garrard (2012), both men and women prefer off-road cycle paths to on-road cycling. Furthermore, AitBihiOuali and Klingen (2022) found that dedicated cycling infrastructure increases women's participation in cycling by 4% to 6%. Wheels for Wellbeing's (2021) survey of 245 participants found that accessible cycle infrastructure was the most important intervention for Disabled cyclists. In the area I now live, there is a lack of dedicated cycle infrastructure in close proximity, and this has hindered my confidence and independence on a bike. As a result, I turned to indoor cycling (spin) until inaccessibility made me stop.

I had never found spin classes very accessible; the dark room, loud music and sometimes flashing lights made it almost impossible to hear or lipread the instructions. But during one particular class, my frustration grew to a point where I could no longer ignore it. That day I was struggling to deploy my usual tactics, such as copying the people around me; perhaps I was tired and my coping strategies weren't working, or perhaps it was louder and darker than usual. Whatever it was, I couldn't follow the class, and so I walked out early. On my way out, I approached one of the gym's managers to see if there was anything that could be done to make future classes more accessible for me. Instead of a willingness to work together to find a solution, I was met with resistance and a lack of care.

I am not alone in facing barriers to accessing fitness spaces as a deaf person. Personal trainer India Morse (2024) describes her experiences:

"Instead of walking out of the studios feeling empowered, I'd be close to tears, feeling lost and alone – the fast-paced environments meant I couldn't lip-read the trainer's instructions and the usually dark environments meant I couldn't follow along – I felt like I didn't belong there."

Echoing my experience, she continues, "Personally, it was exhausting to pick myself back up and find the courage to go back into that environment – especially when many didn't understand or weren't able to support me."

This is a barrier that is especially acute for deaf women because they are more likely to cycle indoors, according to research. Around 75% of outdoor cycling trips in England are made by men (Cycling UK 2024), whereas 76% of attendees at fitness group classes are women, with indoor cycling being one of the three most popular classes (UK Active 2021).

The barriers to indoor cycling for women, Disabled people and other minorities mustn't be overlooked. As a deaf woman, a change in mindset, where creative solutions to inaccessibility are actively sought, would go a long way to reducing the barriers I face. For example, Amy Hill, a personal trainer from Glasgow, told Stylist (Beecham, 2021) how she uses lighting in her fitness classes aimed at deaf people, with red lights meaning stop and rest, and green, go.

Designing sound spaces

I have long been aware of how the design of a room can affect its acoustics, and, therefore, how easy or difficult it is to hear or communicate in that space. My earliest memory of this realisation is from the visiting Teacher of the Deaf advising my school on how they could improve the acoustics of our echoey classrooms. I've taken this approach through to adulthood, for example, by adding soft furnishings to my kitchen to make it easier to follow conversations. However, I hadn't given much thought to how the design of our outdoor environments could impact how I access and experience a space as a deaf person. That was until a conversation with a colleague prompted further research, and I came across the concept of soundscape design, particularly in how it affects how Disabled and neurodivergent people navigate a space. As Renel (2022) describes, "...the urban soundscape becomes a vital component in the design of any environment that wishes to be inclusive of a diversity of bodies and minds." Soundscape has been defined by the International Organisation for Standardisation (2014) as "the acoustic environment as perceived or experienced and/or understood by a person or people, in context."

How does this apply to deaf and hard of hearing people especially? Harold (2013) argues that "a significant aspect of the performance of Deaf identities is the negotiation of spaces that have been designed with the hearing body in mind". In Renel's (2022) binaural sound-walking workshops, participant 1 explains, "For people like me with hearing loss how the sound is designed in a space is key for communicating." The researchers conclude, "What is clear when comparing the positive and negative comments about sound from participants 1 and 2 is that the way in which sound is designed has significant implications for people with a range of impairments." Although these workshops were focused on indoor environments, participants were asked to narrate their experience of walking around Battersea Arts Centre. It is convincing that this would be applicable to outdoor environments as well.

When it comes to soundscape research in urban environments, attention is starting to move away from noise reduction as the primary consideration. As Kang (2023) notes, "Started from the pioneering work in soundscape just over 50 years ago, in the field of environmental acoustics there has been a focus shift from noise control to soundscape creation."

But is this reflected in technical guidance, and therefore, how our cycle spaces are designed? An exploratory peruse of design guidance that is commonly used in England and the UK suggests otherwise. As expected, guidance refers to noise pollution, such as in Active Travel England's scheme review tools (2025), Manual for Streets (Department for Transport 2007) and Healthy Streets (n.d.); "not too noisy" is one of the ten indicators.

Why does this matter? Noise pollution deserves our attention because we rarely discuss its impact on our health (BBC Future 2024; EEA 2025; Inside Health 2024). However, when considering the experiences of Disabled people navigating various environments, it should not be the only consideration. As participant 6, an autistic male in his 20s, expressed in Renel's (2023) study, "For me the issue isn't whether a place is loud or quiet, I like both at different times, the problem is not knowing where different spaces are..." Considering my experience as a deaf cyclist, it feels reductive to say that reducing sound is the primary concern. It is how, when moving through a space, I interact with the soundscape, the feedback from the path's surface, the sound of tunnels and how I hear (or don't hear) other path or road users. Deafness is not a homogeneous experience. Level of hearing loss aside, there is diversity in our upbringing, sense of identity, how we communicate, whether we use assistive technology, intersectional identities and much more. The field of soundscape design has the potential to offer a wealth of insight and application for cycling and beyond.

What's next?

Through the lens of my personal experiences, I have taken you on a whistlestop tour of the experiences of invisibly Disabled cyclists, particularly deaf cyclists. Exploring barriers shared

with other Disabled cyclists, but also those that are unique by virtue of the invisible nature of our Disabled experience. I have explored a range of considerations, but this is one person's perspective. Neither the breadth nor the depth will have been covered.

I conclude that there is limited evidence in the literature on the experiences, challenges and needs of invisibly Disabled cyclists and deaf cyclists, and so there is need for further research.

From my experiences and exploration of the existing research, I suggest topics of interest should include, but not be limited to, the following:

- Personal accounts from deaf cyclists;
- The unique barriers faced by invisibly Disabled cyclists;
- The benefits of physical activity on deaf people's physical health and wellbeing;
- The influence of role models on invisibly Disabled cyclists;
- The accessibility of indoor cycling in gyms and fitness spaces; and
- How soundscape in the outdoor environment impact the experiences of deaf cyclists and the resulting considerations for design. This would have positive implications for people with other sensory needs as well, such as visual impairments and neurodivergence.

Research experts, not research subjects

In stating that there needs to be more research, it is important, although it should not be necessary, to note that the way this research is conducted holds significance and therefore requires consideration. As scholars, including Kyle and Baker-Shenk (1990), Ladd (2002, cited in Harold, 2013) and, more recently, Singleton, Jones and Hanumantha (2017), have expressed, research has historically been conducted “on” the deaf community, rather than “with” the deaf community. Therefore, further research must take place with us and centre our perspectives and expertise.

Conclusion

In many ways I am still at the beginning of my journey with cycling, learning that I don't have to fit into normative depictions of cyclists in order to get on my bike and enjoy the journey. I am aiming towards a destination where Disabled children feel empowered to cycle, and making mistakes builds resilience not reticence, where cycling, indoors and outdoors, is accessible and safe for everyone, and our outdoor environments are designed with diverse experiences in mind.

Acknowledgements

FG conceptualised and wrote this original article whilst working in a National Lottery-funded role for Bristol Climate & Nature Partnership and the Walk, Wheel, Cycle Trust (formerly Sustrans), Bristol, UK. Zoe Banks Gross reviewed an early draft.

Competing Interests

The author has no competing interests to declare.

References

- Active Travel England** 2025 Active Travel England's scheme review tools, 14 February 2024. Available at <https://www.gov.uk/government/publications/active-travel-england-scheme-review-tools> [Last accessed June 2025].
- AitBihiOuali, L and Klingen, J** 2022 Inclusive roads in NYC: Gender differences in responses to cycling infrastructure. *Cities*, 127. DOI: <https://doi.org/10.1016/j.cities.2022.103719>

- Aldred, R** and **Pedroso, D** 2024 *Breaking the cycle: Representation and diversity in photographs of cyclists*. London, England: Possible. Available at <https://www.wearepossible.org/our-reports/breaking-the-cycle> [Last accessed June 2025].
- Aldred R, Woodcock J, and Goodman A** 2016 Does more cycling mean more diversity in cycling? *Transport Reviews*, 26(1): 8-44. DOI: <https://doi.org/10.1080/01441647.2015.1014451>
- Andrews N, Clement I and Aldred R** 2018 Invisible cyclists? Disabled people and cycle planning – A case study of London. *Journal of Transport and Health*, 8: 146–156. DOI: <https://doi.org/10.1016/j.jth.2017.11.145>
- BBC Future** 2024 How traffic noise hurts children's brains, 20 June 2024. Available at <https://www.bbc.co.uk/future/article/20240621-how-traffic-noise-pollution-harms-childrens-health-and-development> [Last accessed June 2025].
- Beale, J T and Brickell, W H** 2024 “I can't imagine me without a bike” The lived experience of deaf countryside cyclists. *Speech, Language and Hearing*, 28(1): 1-13. DOI: <https://doi.org/10.1080/2050571X.2024.2388970>
- Beecham, A** 2021 Deaf fitness: Meet the PT making fitness more inclusive for the deaf community. *Stylist*, 23 July. Available at <https://www.stylist.co.uk/fitness-health/workouts/deaf-fitness-inclusivity-exercise/547469> [Last accessed June 2025]
- Cawthorn, S W, Johnson, P M, Garberoglio, C L and Schoffstall, S J** 2016 Role models as facilitators of social capital for deaf individuals: A research synthesis. *American Annals of the Deaf*, 161(2): 115-127. DOI: <https://doi.org/10.1353/aad.2016.0021>
- Cycling UK** 2024 Cycling UK's Cycling Statistics. Available at <https://www.cyclinguk.org/campaigns/statistics> [Last accessed June 2025].
- Deaf Umbrella** 2024 Invisible Disabilities are real and not yours to prove, 21 October 2024. Available at <https://www.deafumbrella.com/post/invisible-disabilities> [Last accessed June 2025].
- Department for Transport** 2007 *Manual for streets*. London, England: Thomas Telford. Available at <https://assets.publishing.service.gov.uk/media/5a7e0035ed915d74e6223743/pdfmanforstreets.pdf> [Last accessed June 2025].
- Department for Transport** 2022 Active travel: local authority toolkit, 10 August 2022. Available at <https://www.gov.uk/government/publications/active-travel-local-authority-toolkit/active-travel-local-authority-toolkit> [Last accessed June 2025].
- Disability Unit** 2020 Living with non-visible disabilities, 17 December 2020. Available at <https://disabilityunit.blog.gov.uk/2020/12/17/living-with-non-visible-disabilities/> [Last accessed June 2025].
- Dreizler, S** 2022 You can't be what you can't see, 22 May 2022. Available at <https://sonyadreizler.com/news/2018/5/22/you-cant-be-what-you-cant-see> [Last accessed June 2025].
- EEA** 2025 Environmental noise in Europe 2025, 23 June 2025. Available at <https://www.eea.europa.eu/en/analysis/publications/environmental-noise-in-europe-2025> [Last accessed June 2025].
- Goodwin, M V, Hogervorst, E and Maidment, D W** 2023 Physical activity interventions for adults with hearing loss: A systematic review. *Speech, Language and Hearing*, 27(1): 32-42. DOI: <https://doi.org/10.1080/2050571X.2023.2222261>
- Harold, G** 2013 Reconsidering sound and the city: Asserting the right to the deaf-friendly city. *Environment and Planning D: Society and Space*, 31(5): 846-862. DOI: <https://doi.org/10.1068/d3310>
- Healthy Streets** no date *What is Healthy Streets?* Available at <https://www.healthystreets.com/what-is-healthy-streets#indicators> [Last accessed June 2025].

- Heesch, K C, Sahlqvist, S and Garrard, J** 2012 Gender differences in recreational and transport cycling: A cross-sectional mixed-methods comparison of cycling patterns, motivators, and constraints. *International Journal of Behavioral Nutrition and Physical Activity*, 9(106). DOI: <https://doi.org/10.1186/1479-5868-9-106>
- Hidden Disabilities Charity** no date *About hidden disabilities*. Available at <https://www.hiddendisabilities.org.uk/about-hid> [Last accessed June 2025].
- Inckle, K** 2020 Disability, cycling and health: Impacts and (missed) opportunities in public health. *Scandinavian Journal of Disability Research*, 22(1): 417-427. DOI: <https://doi.org/10.16993/sjdr.695>
- Inside Health** 2024 Can noise harm our health? 2024 April 3. Available at <https://www.bbc.co.uk/programmes/m001xvnb> [Last accessed June 2025].
- Interlandi, M** 2005 The effects of exposure to role models on the self-esteem of deaf students. Unpublished thesis (Master's), Rochester Institute of Technology. Available at <https://repository.rit.edu/theses/3979/> [Last accessed June 2025].
- International Organization for Standardization** 2014 ISO 12913-1:2014 acoustics – soundscape – part 1: definition and conceptual framework. Geneva, Switzerland: The International Organization for Standardization. Available at <https://www.iso.org/standard/52161.html>
- Irish, T, Cavallerio, F and McDonald, K** 2018 “Sport saved my life” but “I am tired of being an alien!”: Stories from the life of a deaf athlete. *Psychology of Sport and Exercise*, 27: 179-187. DOI: <https://doi.org/10.1016/j.psychsport.2017.10.007>
- Joy, A, Ledger, S and Duncan, J** 2025 Deaf role-models for Deaf children in hearing families: a scoping review. *The Journal of Deaf Studies and Deaf Education*, 30(1). DOI: <https://doi.org/10.1093/jdsade/ena028>
- Kang, J** 2023 Soundscape in city and built environment: current developments and design potentials. *City and Built Environment*, 1(1). DOI: <https://doi.org/10.1007/s44213-022-00005-6>
- Kyle, J G and Baker-Shenk, C** 1990 Research with deaf people: Issues and conflicts. *Disability, Handicap and Society* [now *Disability & Society*], 5(1): 65-75. DOI: <https://doi.org/10.1080/02674649066780051>
- Miss Representation** 2011 Directed by J. Siebel Newsom.
- Morse, I** 2024 The deaf community deserves to be seen, heard and included - especially in fitness spaces. *Women's Health*, 7 May. Available at: <https://www.womenshealthmag.com/uk/fitness/a60715632/important-deaf-people-not-feel-excluded-gyms/> [Last accessed June 2026]
- Renel, W** 2022 Non-normative sonic space: exploring the divergent capacities of soundscape design in the built environment. In: *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*. Glasgow, Scotland: Institute of Noise Control Engineering. pp. 999-1999. DOI: https://doi.org/10.3397/IN_2022_0153
- Singleton, J, Jones, G and Hanumantha S** 2017 Deaf community involvement in the research process: An examination of barriers and strategies in research in deaf education. In Cawthorn, S and Garberoglio, L *Research in Deaf Education: Contexts, Challenges, and Considerations, Perspectives on Deafness*. New York, New York: Oxford Academic. pp. 75-92.
- Sport England** 2023 Active lives survey. Available at <https://activelives.sportengland.org/> [Last accessed June 2025].
- Steinbach, R, Green, J, Datta, J and Edwards P** 2011 Cycling and the city: A case study of how gendered, ethnic and class identities can shape healthy transport choices. *Social Science & Medicine*, 72(7): 1123-1130. DOI: <https://doi.org/10.1016/j.socscimed.2011.01.033>

- The Bikeability Trust** 2022a Helping every child access cycle training, 7 November 2022. Available at <https://www.bikeability.org.uk/blog/helping-every-child-access-cycle-training/> [Last accessed June 2025].
- The Bikeability Trust** 2022b The Bikeability Trust: Impact report 2022. Available at <https://www.bikeability.org.uk/wp-content/uploads/2023/08/Bikeability-Trust-Impact-report-2022.pdf> [Last accessed October 2025].
- The Bikeability Trust** 2025 Monitoring and evaluation report. Available at https://www.bikeability.org.uk/wp-content/uploads/2025/07/250610_ME-Report_June-PDF-Final-1.pdf [Last accessed October 2025].
- UK Active** 2021 How lockdown has affected the gender gap in activity levels, 19 February 2021. Available at <https://www.ukactive.com/news/how-lockdown-has-affected-the-gender-gap-in-activity-levels/> [Last accessed June 2025].
- UK Deaf Sport** 2022 Supporting deaf girls to stay active in their teenage years and beyond, October 2022. Available at <https://womeninsport.org/wp-content/uploads/2023/07/UK-Deaf-Sport-Report-final.pdf> [Last accessed June 2025].
- Walk Wheel Cycle Trust** 2020, Why removing restrictive barriers must be part of our response to Covid-19, 25 June 2020. Available at <https://www.walkwheelcycletrust.org.uk/our-blog/opinion-and-advocacy/why-removing-restrictive-barriers-must-be-part-of-our-response-to-covid-19/> [Last accessed May 2026].
- Wheels for Wellbeing** 2021 *Disability & cycling: Report of 2021 National Survey Results*. Available at <https://wheelsforwellbeing.org.uk/wp-content/uploads/2022/05/Disability-and-Cycling-Report-of-2021-national-survey-results.pdf> [Last accessed June 2025].
- Wheels for Wellbeing** no date Hidden disabled cyclists. Available at <https://wheelsforwellbeing.org.uk/hidden-disabled-cyclists/> [Last accessed June 2025].

How to cite this article: Grieve, F. 2026. Increasing the Visibility of Invisibly Disabled Cyclists: A Personal Account from a Deaf Cyclist. *Active Travel Studies: An Interdisciplinary Journal*, 5(2): 1–10. DOI: <https://doi.org/10.16997/ats.1964>

Submitted: 02 July 2025 **Accepted:** 31 March 2026 **Published:** 09 September 2026

Copyright: © 2026 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.

 *Active Travel Studies: An Interdisciplinary Journal* is a peer-reviewed open access journal published by University of Westminster Press.