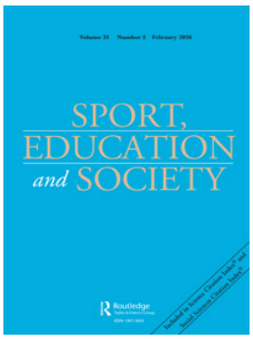

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Sensory methodologies and disabled sporting embodiment: implications for research and practice in physical education

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ABSTRACT

In this paper, we centre the senses and sensory methodologies in researching disabled sporting embodiment and make suggestions for how such approaches can inform research and practice in physical education (PE). Firstly, we conceptualise sensory research and illustrate its value in revealing the embodied experiences of disabled bodies in sport and PE. Specifically, we advocate the use of sensory research in: (i) developing multifaceted, complex, embodied and messy understandings of disabled bodies; (ii) challenging the normativity of sensory experience; (iii) exposing the felt, enfleshed feelings of ableism; and (iv) acknowledging the emplaced experiences of disability. Drawing on our own experiences of undertaking sensory research in disability sport, we demonstrate the usefulness of this approach in action by providing three vignettes exploring the embodied experiences of physically (spinal cord injury) and sensorially (visual impairment) impaired people and of autistic spectrum disorder (ASD) in sport. We conclude by making suggestions for developing sensory research practices when exploring the embodied experiences of disabled pupils in PE and how sensory understandings can enhance embodied practices in PE.

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Introduction

In response to critiques of social constructionist approaches to analysing 'the body' in sport and physical education (PE) that risk disembodied ways of knowing (Sparkes, 2016), scholars have called for research which deeply engages with 'fleshy, messy, material (biological) and sentient' (Sparkes, 2017, p. 3) bodies which embrace the embodiedness of human experience. Challenging established Cartesian mind/body dualisms, embodied research emphasises the corporeal, emotional, visceral and often complex, contradictory and unruly realities of living in and through a body (e.g. Inckle, 2009, 2010). There is now substantial evidence that the conceptual landscape of researching bodies is changing and carnal explorations of sport and PE and the 'enfleshed' beings that comprise them are being eclectically diversified. For example, phenomenological (e.g. Allen-Collinson, 2009), sociological phenomenological (e.g. McNarry et al., 2019) and feminist phenomenological (Allen-Collinson, 2013) theorisation and writing the body-self through embodied auto-ethnographies (e.g. Lowry et al., 2022; Wheeler & Peers, 2022) are now well established in the field. More recently, new materialist approaches to

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sport and PE have sought to attune to the materiality of body and how it moves within, and is entangled with, the physical environment (e.g. Markula, 2019; Thorpe et al., 2021). This research has helped to reveal how bodies and bodily experience form the very basis through which we construct meanings of ourselves and the world around us.

Significantly, another important approach which builds on our understandings of how embodiment is experienced has emerged that has been termed *sensory research*. An umbrella term for a constellation of alternative theoretical and methodological advances which embraces our *sensoriality* as embodied beings, sensory research studies how the senses (including but not limited to, what we see, hear, smell, touch and taste) interplay and interact to inform perception and structure everyday experience (e.g. Howes, 2004, 2005; Pink, 2011, 2015; Vannini et al., 2012). Holding the 'sensuous and sensing sporting body' (Hockey & Allen-Collinson, 2007, p. 116) central, sensory research presents a more balanced appreciation of embodiment by embracing all of our sensorium in structuring spatial and temporal meanings in the social and cultural settings which we inhabit (see Sparkes, 2017). This is demonstrated in sensory research in sport which has focused mixed martial arts (Spencer, 2012) and in physical activity settings which have addressed running (e.g. Allen-Collinson & Hockey, 2011), yoga (Atkinson, 2017), skateboarding (Bäckström, 2014) and gym practices (Brighton et al., 2020). Notably, in appealing to our sensoriality these accounts do not only call for the reader to engage analytically with the phenomena under study, but transcend textual representation by evoking sensory feeling *inside* the reader themselves. As Sparkes et al. (2003) discuss, approaches to research and representational styles that generate palpable embodied sensations and emotions help the reader to attune to the lived experiences of the other fostering empathy and creating new relationships between participant/researcher/reader in ways which can arouse action.

Despite this 'sensorial turn' (Howes, 2024) however, very few accounts in PE specifically employ sensory research. Acknowledging narrative methodology as a sensory experience, lisahunter and emerald (2016, p. 30) outline how greater attention to the senses in research expands understandings of experiences in PE through generating ways of 'knowing which is expressed beyond words'. Likewise, scant research exists that explicitly uses the senses as the conceptual foundation in exploring disabled peoples in sport and PE – which can perhaps be explained by underlying emphasis of the social model of disability which stresses the importance of identifying structural barriers and material disadvantages that disabled people encounter in society over individual experience (Oliver, 2020). Research that does exist tends to address experiences of visual impairment (i.e. sight) amongst cricketers (Powis, 2018, 2019, 2020), runners (Powis & MacBeth, 2024) and cyclists (Hammer, 2015, 2017). Importantly, these investigations evocatively exhibit how sensory research offers compelling ways of contesting the inferior binary positioning of disabled bodies and socially constructed understandings of Otherness. As Hammer (2015) elucidates amongst blind cyclists for example:

> When riding a tandem bike, sighted and blind members experience a unity in which their differences are not eliminated, but rather inform their mutual exchange, broadening the boundaries around the senses and definitions regarding sport, movement, and disability … Blind participants take part in the activity not from an exoticising location but as full members, while sighted people have the uncommon opportunity to engage in meaningful dialogue and communication with blind cyclists, generating intimate relations, a sense of community, and an intersensory embodiment … Rather than normalising or erasing bodily differences, the group acknowledges blindness as an additional medium of experience (p. 517).

Given the possibilities presented in these accounts, the purpose of this paper is to advocate sensory research as a potent way of capturing the embodied and emplaced experiences of disabled people within sport and PE and to quite literally 'flesh out' the potential this approach has in challenging normativity and ableism, nuancing research practices and informing practice. After presenting the possibilities of sensory research in exploring disabled embodiment, we demonstrate sensory research in action. Drawing on our previous experiences of researching with disabled people in sport, we provide three composite vignettes (Ely et al., 1997; Potts et al., 2022) which explore experiences of physical (spinal cord injury; SCI) and sensory (visual impairment; VI) impairment and autistic spectrum disorder (ASD) within these contexts.

The potential of sensory research in exploring disabled embodiment in sport and PE

Sensory research that employs various theoretical (e.g. phenomenology) and methodological (e.g. ethnographic, autoethnographic; narrative; artistic; audio) approaches to reveal multisensorial ways of knowing provides a valuable contribution to exploring embodiment. Whilst not limited to the list below, we now discuss four ways in which sensory research advances understandings of disabled embodiment in sport and PE. *Firstly*, attuning to the rich interplay of auditory, olfactory, gustatory, haptic and visual generates multifaceted, complex and fleshy understandings of disabled bodies and lives. In doing so, sensory research evocatively reveals how impairment is experienced *heterogeneously* – challenging medicalising lenses that have historically homogenised experiences of disability (Goodley, 2024). For example, as Maher et al. (2022) highlight, common misconceptions exist over absolute blindness resulting in ableist assumptions that impede research and pedagogical practice in PE. Revealing the diversity of sensorial experiences of disability also contributes further to developing empathic understandings of the Other by enhancing sensitivity to others' bodies (see Brighton, 2015).

Secondly, sensory research challenges the normativity of sensorial experience and the taken-for-grantedness of the non-disabled sensing body, deepening and diversifying ways of knowing. Researchers of disability have long been accused of making assumptions about the sensory realities of others based on their own ontological senses of being as non-disabled (Howe, 2023; Powis et al., 2023). As Brighton (2015) demonstrates however, being sensitive to sensorial difference fosters more reflexive and empathetic research practices with disabled participants. Although particularly important when doing ethical research into disabled sporting embodiment empathy, or imaginatively putting oneself in the place of another should be used with caution as it is impossible to claim that one can fully experience the lifeworld of another (Van Loon, 2007). Sensory research however represents one response to critiques of much academic work that addresses empathy superficially and makes disembodied or overly optimistic assumptions about others embodied experiences (Smith, 2008). Scholars have also previously noted that there is no natural state of the senses, rather the senses are socialised and differ in alternative social and cultural settings over time (Howes & Classen, 2014; Vannini et al., 2012). Similar to calls to challenge Westernised understandings of the senses (Howes, 2004), the ways in which non-disabled people sense should also be questioned. This includes acknowledging how impairment affects disabled people's sensory experiences and how disabled people relate to and use the senses themselves. For example, people who acquire visual impairment report attending more to what can be heard, touched and felt to shape experience and learn new skills in PE (Hammer, 2018).

Thirdly, sensory research exposes ableism and how the disabled body is socially distinguished. Scholars have previously emphasised how the *visibility* of disability results in stigmatisation, segregation and ostracism (e.g. Charmaz & Rosenfold, 2016; Ysasi et al., 2018) yet also renders disability *invisible* (e.g. DePauw, 1997) in a number of social contexts including in high performance sport (e.g. Powis et al., 2025) by failing to acknowledge impairment or how it restricts disabled people's involvement in society. Notably, visual assessment of the body is both central in non-disabled people's judgements of disabled people and in the hierarchical ordering of bodies between disabled people themselves (e.g. Deal, 2003; Feddersen & Wedege, 2025). Sensory research however enables more nuanced multisensorial and carnal understandings of these processes and the role of all of the senses in enactments of ableism. For example, attuning to the sensoriality of interactions between bodies exposes how in PE, teachers often assume a position of corporeal imperialism, reproducing medical and tragic understandings of disability in distinguishing pupils with visual impairments as unable and flawed (Haegele & Kirk, 2018; Haegele et al., 2019). Alternatively however, pedagogical practices which actively encourage pupils to engage in sensory awareness (e.g. simulation) can dissipate fear and negative positioning of the Other, reducing the 'emotional and physical distance between them as embodied' (Maher et al., 2022, p. 652). Attuning to ones own sensory body and

the sensory bodies of others then helps to challenge preconceived ideas which may be ableist and expose ableism in the in the corporeal interactions between bodies.

Fourthly, sensory research acknowledges the emplaced experiences of disability in sport and PE and how they change over time and in space. As Le Clair (2011) has previously demonstrated, swimmers transform their identities from being labelled a disabled person to becoming a 'Paralympian' when submerged in the habitus of elite sport (Bourdieu, 1990). In doing so, their bodies were judged under sporting parameters in the fields in which they inhabited, rather than the negative criteria though which their bodies were judged in broader social contexts providing relief from ableist oppression within these times and places. Whilst not explicitly addressed in this research, the senses implicitly shape experiences of disabled swimmers and the habitus in which they are submerged. Evaluations of self-identity for example were not made through ocular evaluation of others but on how their own sensing bodies felt, particularly their 'love for the water and the freedom of movement in swimming' (Le Clair, 2011, p. 1125). Gathering sensory data including the felt, tasted, smelt and heard, as well as the pleasures, pains and pressures disabled pupils experience in PE lessons then will allow greater appreciation of the temporality and spatiality of these experiences.

Also important to note here is that researchers themselves are emplaced and inhabit different bodies and selves in different times and spaces. Accordingly, Pink (2009) calls for researchers to become 'sensory apprentices' in attuning to the senses and in their interpretations of how participants experience the world spatially and temporarily. As she highlights, although 'attending to the sensorality and materiality of other people's ways of being in the world, we cannot directly access or share their personal, individual, biographical, shared or 'collective' memories, experiences or imaginations' we can however align our 'bodies, rhythms, tastes, ways of seeing and more with theirs, thus feel that we are similarly emplaced' (p. 40). This is particularly pertinent for non-disabled researchers researching the emplaced experiences of disabled participants given how the normatively functioning and sensing body often disappears from consciousness and is left unquestioned (Leder, 1990; Vannini et al., 2012).

The senses and disabled sporting embodiment in action

Having discussed how sensory research offers valuable contributions to exploring disabled peoples embodied experiences in sport and PE we now offer three sensory vignettes spanning differing impairments (SCI, VI and ASD) and contexts (amateur and elite disability sport) in order to demonstrate these possibilities in action.[1] For author a and b, vignettes were crafted from previous prolonged and ongoing participatory ethnographic fieldwork where the sensual experiences of disabled athletes emerged as central (see Brighton, 2015; Powis, 2020). This involved being submerged in disability sport subcultures, adopting different roles and developing trusting relationships over time (see Brighton, 2015, for example). Meanwhile, author c's vignette was constructed from ethnographic observations of her child over a number of years which were shaped specifically for this paper. Whilst all authors had a wealth of experiences in the field to draw on, the episodes chosen to craft into vignettes reflected the importance of participants sensory worlds and highlight the potency of sensual research.

The accounts that emerged can best be described as 'composite vignettes', where our own experiences are woven together with participants and our interactions with them (see Potts et al., 2022). As Ely et al. (1997) point out, composite vignettes are a creative non-fictional representation form that enables participant voices to be heard, and importantly in our research, the sensory worlds of participants to be felt, smelt, tasted and seen. Accordingly, vignettes were constructed by each author individually by drawing on factual events but shaped creatively through drawing on linguistic tools to help generate understanding of, and resonance with, the sensory experiences of disabled research participants. Important to note here is that as the vignettes selected emerged through *our* engagement within these fields and experiences with participants, they also illustrate how as researchers we experienced the sensorial landscape and developed multisensorial ways of

knowing of the other and ourselves. In doing so, we became 'sensory apprentices' (Pink, 2009) by maintaining open minds to re-thinking what is going on through sensory possibility and learning to know in multi-sensorial ways.

As we have previously discussed (Brighton et al., in press) when researching disabled sporting embodiment, trying to put yourself in another's body and draw empirical conclusions based on personal sensory experience is dangerous as it risks reproducing ableist assumptions about impairment. One way that we approached the question of 'How do I learn to know how others know?' was by each of us maintaining a sensory research diary to critically reflect on what we thought we knew about the sensorial experiences of disabled athletes. As the research journey progressed, we continually reflected on how our preconceptions were challenged through learning from our participants multi-sensory experiences. This reflexive process allows for the familiar to be made strange and consider how best to explore, analyse and represent what it is to be a disabled athlete (Brighton et al., in press). Our efforts here to 'reflexively cultivate' our own sensations and understand other's sensations then represent attempts to develop *sensory intelligence (*Vannini et al., 2012, p. 67) which is demonstrated in our composite vignettes by incorporating multiple and interwoven perspectives between researcher and participant.

Following the vignettes reflections are provided. The themes chosen for discussion were first generated by each author independently in relation to the four points advocating sensory research identified earlier in the paper. Authors then came together to compare their vignettes, share key themes and commonalities and critically discuss their own positionality within the sensory accounts forwarded. The reflections selected represent the results of this relational process and demonstrate the power of sensory research in revealing the rich, diverse and emplaced experiences of disabled people in sport and PE in ways which challenge normativity and expose ableism. As Vannini (2017) suggests, we also appeal to the reader to implicitly draw on intention and meaning from the vignettes themselves and reflect on the senses experienced when engaging with them.

Vignette one: spinal cord injury and wheelchair basketball

In the vignette below, author a reflects on a moment which arose during a training session with a wheelchair basketball club whilst undertaking one of his informal assistive roles. Although players in the club encompass a multitude of congenital and acquired impairments, it focuses on the corporeal interactions between Jackie, a female player with acquired SCI and lower leg amputation, and other male players present. As the events unfold, Author a's embodied and self-reflexive responses to them are included as he questions his non-disabled sensory world and ableist assumptions. Accordingly, the vignette is represented as a 'confessional tale' (Sparkes, 2002) as he contends with the dilemmas presented both to Jackie and his role in (re)production of social behaviour.

It has become an accepted part of my voluntary role with the [wheelchair basketball] team to help players transition from the wheelchairs that they use for everyday mobility into lightweight, technical specialised sports wheelchairs. Whilst also demonstrating a growing rapport (as participants grant permission for me to touch their bodies) this routine allows me to get up close and personal to the disabled body. As I lift up Steven, and lower him into his basketball chair he smirks 'Thanks mate, now go over there and help Jackie, she neeeeeds you'. His comment is accompanied by a chorus of poorly contained crackles of laughter by the other players within hearing distance. I walk over to Jackie. She is sat in her chair, shoulders slumped, clothed in dank, dingy, dirty t-shirt and jeans rather than the new, fresh and branded basketball vests and shorts other players are adorned in. 'Would you like me to transition with you?' She nods an affirmative response without saying a word, her voice suppressed by the proceeding performance of the other players which she has just witnessed.

As I get closer to her chair, the acrid ammonic smell of stale urine and stagnant body odour overwhelms my nostrils. So powerful is the aroma I can taste it in my mouth. The acidity gets stuck in my throat making me gag. The smell has a visceral quality, and I immediately associate it with other

bodies, times and spaces I have encountered in my life. Primary school. Public toilets. Elevators. Homelessness. Attempting to manage my internal state of perception (and judgement perhaps?), I slide one arm under her legs which are amputated below the knee, and the other around her lower back and lift her up out of her chair. In doing so, I notice multiple circular dried urine stains that have leaked on the fabric of the frayed cushion. It is clear that it has neither been cleaned or replaced in some time. I lower Jackie into the fresh shiny sports chair provided by the club and wish her good luck for the training session ahead. As I stand up I am struck by the pungency of her scent which remains on my skin etching a presence in my memory, what Seremetakis (1996: 1) would call a 'memory of the senses'. Steven and the other players are now all now laughing uncontrollably like I was the victim of the practical joke before wheeling off to join in the warmup.

Vignette two: visual impairment and elite cricket (Author b)

Whereas in vignette one the author's body is very much present, in the following account author b is more evacuated with deeper emphasis being placed on the bodies of participants. The scene depicted is that of a training session in an elite VI cricket context with author b taking a more observational role.

Thomas is opening the bowling with his long, explosive run-up, accelerating towards the crease and then, with quick flick of wrist, he delivers a rapidly swerving ball to the expectant batter. Clive, who is crouched low, plays a punchy paddle shot towards the fielder at short mid-on. The sound of the ball on bat is piercing – the crack of plastic on wood and explosive rattle of ball-bearings instantly alerts the fielders to the ball's path. Kamran, a blind (B1) player, hits the ground, spreads his body and makes the stop. Behind the stumps, the wicket-keeper, loudly calls 'Right hand down' then 'Stumps! Stumps! Stumps!' so Kamran can return the ball to his gloves. While this is going on, the batters call for a quick run and scamper home to add one more to their total. As somebody new to visually impaired (VI) cricket, the multi-sensoriality of this training session is incredibly intense. Yet, hidden within the omnidirectional mass of noise are clues to make sense of what is going on: the bowler checking if the batter is ready, the wicket-keeper clapping to position the bowler, the sound of the ball being delivered then hit, the various shouts from fielders and batters. And then silence. The bowler quietly reorientates themselves using the stumps, before it all starts again.

As black clouds gather overhead, rumbles of thunder begin to punctuate the cricketing soundscape. We run for cover and relocate to the gymnasium, in which a modified version of practice continues. The compact room is reminiscent of childhood PE lessons – crumbling mint green walls, poor acoustics, the stale smell of sweat. Sandy, a B1 player of great skill, is the first to bat. Despite the sounds of torrential rain masking the ball's location, he does not miss a single ball, playing a full catalogue of shots. During the drills outside, he demonstrated an unnervingly accurate bowling action and immaculate fielding. Sandy, who is the oldest member of the squad, lost his sight late in life, but has seamlessly adapted to the game of VI cricket. Later in the session, Kamran is struggling with his batting and Sandy offers some advice. Squatting behind the stumps, he listens intently as the coach continues to feed balls to the batter. After a few deliveries – and a few more swings and misses – Sandy steps in and encourages Kamran to focus on his timing. As the next ball is released, he gruffly commentates 'Wait … wait … wait … and now! Hit it, Kam!' In a positive reworking of the blind leading the blind, Sandy does not rely upon sighted cues to evaluate Kamran's technique. Instead, his coaching is built upon an intimate, non-visual conception of batting. Sandy's sensory knowledge, specifically the auditory cues required to play a successful stroke, has been cultivated through practice and repetition. Rather than concentrating on technical adjustments, he is teaching Kamran how to listen, a skill which is often ignored by mainstream coaches and educators. As Sandy demonstrates, seeing is not always knowing; there is significant value in comprehending the multisensoriality of sport.

Vignette three: ASD and swimming (Author c)

The final vignette presented offers a reflection of Freddie, Author c's 11-year-old son, who has been diagnosed with High Functioning Autism (HFA) and his experiences of being coached in swimming at school. While the scene focuses on Freddie's sensory perception, it does so through his interactions with both his coach and his mother, who has observed his sessions throughout his life. Importantly, Author c's embodied presence is also depicted, reflecting a body that has itself experienced the dark and uncompromising culture of swimming (e.g. McMahon & Dinan-Thompson, 2011).

11-year-old Freddie readies himself for the swimming session ahead. Already, he is squirming, a reaction to his swimming trunks feeling tight. I get a swimming cap out of his gear bag for him to put on. The school swimming coach has made it a compulsory rule for all children to wear a swimming cap, no exceptions. Freddie begs me not to put it on as it makes his head feel itchy and pinches his ears. I can see his discomfort as I put it on. He then goes on to say:

'I wish they didn't have the pool lights on. They are burning my eyeballs.'

I try and remain relaxed, but Freddie's noticeable discomfort to the swimming pool, an environment which has so many acoustic challenges is elevating my own anxiety. The other children are scattered around us and rather than talking in a conversational tone, they are yelling at each other recounting the events of the day. Amongst the yelling and laughing of the other children, is a whistle being blown by the school coach signalling to the children already in the pool when to dive. The coach is also yelling corrections to those children who are practising their dives. Then, the coach yells at the previous group to get out of the pool as their session is over.

The coach yells again, gathering all the children in the next group together on the pool concourse. Freddie follows the other children, standing amongst them. The coach then proceeds to verbally tell the children their warm-up rattling off the following:

School Coach: 'Ok, you have 3×200 warm-up with 30 s break after each 200. The first one is freestyle. The second one is form stroke and the third one is drill breathing every two strokes on the way up and every three strokes on the way back.'

From the grandstand, I am watching Freddie closely and can see that he is becoming overwhelmed with the coach's instructions. I am hoping he caught some of what she was saying otherwise he will yet again get into trouble for not listening. He seems to be that one child who is always getting into trouble. The children line up ready to dive into the pool, but just before it is Freddie's turn, he quickly leaves the line and rushes over to me in the grandstand. He says,

Freddie: 'It's too loud. All the sounds are crashing into my head at once. I really tried to listen to the coach talking, but her mouth is moving too fast and it's too loud. I don't know what I am supposed to do.'

Before I can slowly and clearly explain to Freddie what he is supposed to be doing, the coach shouts from the other side of the pool:

School Coach: 'Freddie, get over here and get in the pool!'

As Freddie rushes away, rejoining the line, the coach asks Freddie to tell her what he is supposed to be doing. Freddie shrugs and says he doesn't know. The coach then yells at him loudly again, aggressively telling him he must start listening or he can sit on the side of the pool. I notice all the other parents turn towards Freddie to see what is happening. The coach then glances towards me as if it is something that I also need to address. This makes me feel like I have been reprimanded as well. Freddie then dives into the pool with ease. Swimming is something that has always come naturally for him. As he comes up from his dive, he does butterfly instead of freestyle. The coach immediately notices and begins yelling at him yet again,

School Coach: 'Freddie, what hell are you doing? Why do I have to yell at you to get you to listen? You need to start listening, otherwise you can sit on the side of the pool and watch. This is your last chance – otherwise there will be no swimming for you. Do you understand?'

Reflections

The scenes depicted above movingly demonstrate the senses in action as experienced both by disabled people and by researchers as sensing bodies in the ethnographic terrains which we inhabited. Each has strong sensory, emotional, spatial, temporal and performative dimensions to add to understanding disabled sporting embodiment. Whilst the value of sensory research is revealed in multiple ways, for our purposes in this paper we focus on the reflections below which emerged from our analysis to further scrutinise the sensorial experiences of sport and PE and how they can be used to challenge normativity and expose ableism.

In vignette one, the sense of smell is central in elucidating how Jackie was belittled, othered and stigmatised by her peers within a disability sports club and how such social distinctions were enacted and performed. Simmel (1997 [1907], p. 119) suggests that 'smelling a person's body odour is the most intimate perception of them … they penetrate, so to speak in a gaseous form into our most sensory inner being'. Accordingly, the odour of Jackie's body and that which leaks onto her clothes and wheelchair cushion represents a potent barrier to interaction and integration with the (male) players on the team who perceive the smell as lack of hygiene polluting the air which they inhabit (Douglas, 1966). Largey and Watson (1972, p. 32) have previously indicated how body odours act as 'the insurmountable barrier to close interracial and/or interclass interaction', and the sensory evidence generated here suggests that bodily smell presents one of the innermost barriers preventing integration of the disabled body in sport and PE. Importantly, as Largey and Watson (1972, p. 35) continue, society places emphasis on personal responsibility to maintain the way the body smells in managing our 'olfactory identity'. In this case, Jackie's leaking body and associated odours represent a lack of control which should be regained or concealed as effectively as possible (Frank, 1995; Lindemann, 2010). It is through smell then Jackie's identity becomes what Goffman (1963) would deem as 'spoiled' as she is unable to uphold socially acceptable performances of bodily fragrance, becoming stigmatised and shut out of future dramaturgical performances. Seemingly, there is little consideration or care that Jackie's olfactory condition might be a result of neglect or material disadvantage resulting from her disability. Smell then plays important roles in social interaction in sport and PE, formulating perceptions of others and contributing to processes of othering. As summarised by Low (2005, p. 405): 'the differentiation of smell stands as that which involves not only an identification of 'us' vs 'them' or 'you' vs 'me', but, also, processes of judgement and ranking of social others'.

Tellingly the vignette also demonstrates how, similar to many non-disabled sporting spaces, disability sport possesses its own structures and hierarchies within which banter and bullying is widespread (see Brighton et al., 2025). In this case, sensory research helped to reveal how these discriminatory practices are often based on the body and how it is sensed by others. These unique inner social workings also appear to determine that within the context of wheelchair basketball club, Jackie's embodied identity was distinguished more by her olfactory condition than by having no legs. Whereas amputated legs are more visible and might be deemed non-normative in many settings, within the social dynamics of a disability sport club it was her smell was stigmatising. In this regard then, disability sport clubs create unique social norms informing perception and behaviour towards others similar to that reported in non-disabled sporting sub-cultures (e.g. Coakley & Donnelly, 1999). Whilst it was unknown whether Jackie herself was aware of her bodies smell or the bullying she became the target of, the vignette further demonstrates how some bodies are valued and others marginalised and ridiculed in sporting spaces, both disabled and non-disabled.

Vignette two offers a stark contrast to ocularcentric and normative ways of understanding and *doing* sport. In the opening scene, we encounter something familiar *yet* different: the game of cricket but being played in an *alternative*, multisensorial way. However, its multisensoriality does not necessarily make visually impaired (VI) cricket a site of sensory importance. As evident in other forms of adapted sport and PE, it is the participants' sense-making strategies (Powis, 2020) used to conceptualise and negotiate this space which are significant. Thomas, Clive and Kamran's

varied *somatic work* (Vannini et al., 2012, p. 15) – in which 'sense and sense-making are necessarily conjoined, codetermined and mutually emergent in active and reflexive practices' – demonstrate a 'different' way of playing cricket that is not dependent upon sight. Notably, particularly in the context of PE, this sensory knowledge has been learnt then honed through practice which, of course, requires an educator. While visual perception is often privileged in coaching environments (Powis, 2018) – for example, the demonstration of a skill in which participants are encouraged to focus upon how it 'looks' – somatic work pushes coaches to consider the auditory and the haptic in their practice and how to support athletes in learning to *listen* or to *feel*. In the vignette, Sandy's coaching Kamran to *how* to listen to the ball highlights the shortcoming of established normative (i.e. visual) modes of coaching in adapted sport and PE. It also demonstrates the importance of harnessing disabled peoples' embodied and sensory knowledge in coaching practice. Yet, many coaches and educators are reticent to do this, especially those who seek mainstream credibility. Despite the evident value of non-visual sensory modes in sport and PE, the traditional coaching manual and plethora of professional qualifications are inescapably ocularcentric: to have vision is to have knowledge. Clearly, Sandy's coaching, as well the players' ways of *doing* VI cricket, illustrates the fallacy of this ableist rhetoric. In fact, the pedagogical lessons of this coaching encounter – engaging with non-visual sensory modes and the role of peer support – should also be employed in non-disabled spaces. These tools are not unique to disability cricket or, more broadly, adapted sport and PE. For coaches and educators, understanding the significance of auditory and haptic modalities and providing participants with guidance to harness their sensuous experiences is transferrable to all sporting contexts.

Vignette three depicts how Freddie struggled with noise and brightness in an aquatic environment, and consequently experienced sensory overload. This is unsurprising given research has shown that sensory factors within physical environments can be challenging for autistic children (Waddington et al., 2025) which become particularly relevant within educational settings impacting on engagement and participation (Dargue et al., 2022). The school swimming coach, through an authoritarian teaching style (Mosston & Ashworth, 2002) and a lack of understanding regarding learner diversity, misrecognised Freddie's difficulty in acquiring complex verbal instruction as a *behavioural* issue. The coach's personal reaction to Freddie's perceived listening difficulties highlights how his auditory processing deficit became an inconvenience for her. The school coach's constant need to correct him is symptomatic of attempts to reinforce dominant ableist social norms (Peers, 2012). Resultantly the coach held expectations that all children, regardless of their ability to listen and comprehend complex verbal coaching instructions, are required to engage in standardised ways while also tolerating an acoustically challenging sensory environment. Accordingly, every child was expected to process rapid verbal instructions at the same rate and in the same manner. They were also required to perform the same level of activities in the pool and to be at a similar level of physical ability. Similarly, it was enforced that all participants should wear a swimming cap. This left Freddie, who has auditory processing and working memory deficits, marginalised by the school coach when he did not conform to her normative listening expectations (Rudd et al., 2024). This episode was not the first time Freddie had experienced negative interactions with the school coach. Prior to this incident, Freddie demonstrated visible embodied responses including discomfort, fidgeting and withdrawal during sessions when repeatedly being criticised for 'not listening'. Over time, his response shifted from momentary distress to reduced motivation to attend school swimming sessions, despite his competitive success in the sport. However, the coach's approach remained unchanged throughout the school term, continuing to prioritise normative listening expectations.

Freddie's significant difficulties in processing verbal instructions and managing multiple pieces of information, and the coach's inability to make any adaptions to the way she delivered instructions exemplifies *implicit ableism*. Here, disabled people 'are devalued or excluded through unquestioned assumptions and norms that prioritise able-bodiedness' (Peers, 2012, p. 172). Freddies' difficulty processing auditory information, and the associated sensory overload, was not a result of non-

compliance, disobedience, or lack of motivation. Rather, it reflects ableist assumptions that all children will respond to instruction in the same way. Significantly, although Freddie's school coach was aware of his ASD diagnosis, his physical capability and advanced swimming ability may have masked the need for pedagogical adaption. This demonstrates how ASD can function as an invisible disability, with support needs often overlooked despite formal awareness (Mullins & Preyde, 2013). The failure to implement reasonable adjustments then represents not only a lack of inclusive pedagogical practice but also a reinforcement of ableist norms that privileges neurotypical modes of learning.

The reflections offered of the three vignettes above emphasise how what it smelt, tasted, seen and heard structure the embodied experiences of both participants and researchers. Across all three vignettes however, touch emerged as particularly meaningful. Author a touched Jackie's body lifting her from her chair; touch informed pedagogical approaches when coaching disabled cricketers; and Freddie's embodied discomfort was evident as he squirmed in his swimming trunks and described how his swimming cap made 'his head feel itchy and pinched his ears'. As Dutkiewicz and Spencer (2017) remind us, touch is 'our first' sense upon entering the world and possess a primordial quality in how we come to understand ourselves and others. They further highlight how we both are 'affected and affect others through touch' (Dutkiewicz & Spencer, 2017, p. 136), within specific spaces and places and according to socially learned conventions that shape who can be touched and how. In Author a's case, this is demonstrated through the explicit seeking of consent before touching Jackie as part of an accepted practice (i.e. transitioning), a particularly important consideration given the heightened risks of physical abuse experienced by disabled women in wider society (Mathisen Olsvik, 2006). Whilst touch is a profound dimension of sensory experience and offers valuable contribution in deepening sentient understandings of sport and disability, it however remains chronically under-theorised and under-utilised in research (Patersen, 2007).

Conclusion and implementations for research and practice

Through the vignettes and discussion offered above we have revealed the strengths of sensory research in exploring disabled embodiment in sporting settings. Attuning to the senses in the corporeal interactions between disabled participants and non-disabled researchers has helped expose how ableism in the form of social distinction, hierarchical ordering and non-disabled pedagogical practice are made beyond visual evaluation. Rather, all the senses (e.g. touch, taste, smell, hearing and others) are employed ubiquitously in these processes, challenging ocularcentric (i.e. giving priority to what can be seen) ways of knowing. Significantly, whilst it has long been recognised that disabled *voices* have been silenced in research (e.g. Yoshida & Shanouda, 2015) and the voices of disabled pupils absent in PE (Maher et al., 2022), our research indicates disabled peoples acoustic, tactile, olfactive and optical experiences have also largely been suppressed, ignored and misinterpreted. Such findings provide further insight into hierarchies of disability and understanding of the social processes that lead to inclusion and exclusion amongst disability peer groups (Feddersen & Wedege, 2025) and by coaches and educators and have important implications for research and practice in PE.

Implications for research

In terms of research into disability, sport and PE this paper raises various methodological considerations when exploring the sensory experiences of disabled people in these settings. As Pink (2015, p. 28) emphasises, sensory approaches to research including sensory ethnography from which our vignettes emerged, requires 'being there' as an 'experiencing, knowing and emplaced body'. Attempts to attune to all the senses and multisensoriality of embodied experience, over time and in collaboration with sensing research participants should therefore be made (Brighton et al., in press). Emphasising researcher reflexivity and positionality are here of central importance as attempts to avoid non-disabled and even ableist assumptions of the other (Waitt & Harada, 2023). Of course, this is no easy task, especially where non-disabled researchers have been socialised

into and inhabit a sensing body which is experienced and deemed socially and culturally normative. Importantly for research into disabled embodiment and PE, sensing bodies are not just disabled but inevitably younger than the researcher. Whilst not unique to sensory research, recognition of the intersectionality of embodiment (i.e. PE pupils are disabled *and* aged, gendered, raced, classed etc) as well acknowledging broader assumptions of power between adult researchers and younger children (see Gubby, 2023; Mayeza, 2017; Quarmby, 2014) also requires careful reflection.

As Sparkes (2017, p. 176) determines, responding to these considerations and challenges requires (re)engaging with our senses and our bodies and creatively nurturing 'sensory intelligence, awareness, imagination' as well as reflexive appreciation of sensory biases. To assist these attempts, co-constructive (i.e. including disabled people in all aspects of research design) and co-creative (i.e. disabled people included and make choices on research design) approaches should be employed as should innovative data generation methods. For example, walk (or wheel) along interviews where researchers and participants who use wheelchairs navigate alternative sensorial spaces at differing times together (see Gubby & Hill, 2025) would reveal ableism in multiple and dynamic ways. More broadly, we also note that sensory research in non-disabled sport and PE would help to reveal multiple forms of discrimination. For example, neglected and disadvantaged non-disabled pupils might have similar olfactory conditions to Jackie resulting in stigmatisation and marginalisation. Importantly, research into disabled and non-disabled sport and PE settings should continue to respond to calls for texts that are sensuous (Stoller, 1997; Sparkes, 2009, 2016, 2017; Vannini et al., 2012) through, for example, creatively experimenting with representational forms such as messy texts, poetry and ethno-drama (e.g. McMahon et al., 2017).

Implications for practice in PE

Sensuous research into disabled embodiment that is undertaken reflexively and ethically can offer important implications for practice in PE. Drawing on the vignettes presented in this paper for example, the following applications can be made. Disability is heterogenous and experienced differently in alternative spaces and times. Further recognition of this amongst educators and coaches would allow for small yet profoundly effective adaptations to made to pedagogical practice. Pupils with ASD for example will inhabit very different sensorial worlds and will have different capacity in articulating their experiences (Kirby et al., 2015). In vignette three, Freddie's sensory difficulties associated with participating in sport in acoustically challenging environments such as the swimming pool highlights the importance of the need to understand each individual's experience of disability, particularly the intrinsic differences of being autistic and what pedagogical adaptations and sensory considerations may be needed (Kimber et al., 2023). Rather than the coach using a 'one approach fits all', they could have offered individual adaptions for Freddie and his sensory challenges (e.g. visual instructions to complement and support verbal). Instead, the lack of consideration and pedagogical adaptions by the coach acted a subtle form of exclusion, which although not intentional, was embedded in the design of session delivery (Rudd et al., 2024). Given the inherent heterogeneousness of disability then, making group wide pedagogical recommendations are problematic – a one size (or sense) fits all is not appropriate, and individualised adaptations should be implemented. To assist in this task, we recommend that sensory research be included in professional qualifications and ongoing professional learning opportunities helping nurture sensory intelligence (Vannini et al., 2012) amongst PE teachers.

Significantly, in spite of PE being an embodied activity there continues to be an overwhelming emphasis on the *ocular* in pedagogical practices. As Morris (2017, p. 1) reminds us, processes of teaching and learning require engagement of 'full range of the senses' and so multisensorial pedagogies should be integrated. For example, in vignette two the acoustic, tactile and olfactory are fundamental in VI cricketers learning skills and being able to compete and were implemented by players themselves and reinforced by coaches. Drawing on broader meaningful approaches to PE (Beni et al., 2021; Fletcher & Ní Chróinín, 2022; Fletcher et al., 2021), reflection between pupils and teachers is central here in determining what was effective, what was not and what else could be done. This

requires PE teachers, especially those new to teaching disabled pupils, to attend to their own senses, sensorial biases and the sensate bodies of those that they teach as part of becoming a 'sensory apprentice'. Importantly, given the power relations present between the expert knower (the teacher) and the subordinate learner (the pupil), teachers should recognise children and young people as experts of their sensory knowledge (whether disabled or not) (see Fitzgerald et al., 2003; Mayeza, 2017) and be willing to destabilise dominant teacher-pupil positioning. Rather than take a 'one up' role in reflections around PE for example, teachers could destabilise such rigid alignment in order to learn from disabled pupils experience to implement pedagogical change relative to the embodied knowledge gained enhancing more meaningful PE experiences.

Here, reflections on the multisensoriality of movement should employ communicative conventions that emphasise sensation, joy and feeling rather than through medico-scientific language (see Brown, 2008) which is normalised in PE and so often bestowed upon disabled people. As Brown (2008) suggests then, pupils should be encouraged to undertake sensory reflection before, during and after lessons and be provided with time and different tools to communicate differing embodied sensations. Doing so would perhaps generate a deeper respect for embodied and kinaesthetic learning and allow for processes where movement is learned through 'felt' experience, or education in movement where the agent understands their own embodied consciousness (Arnold, 1979; Brown, 2008). Questioning hegemonic visual pedagogies in PE and using sensory experience to guide practices in such ways promises to foster empathy and togetherness amongst pupils (see Author a et al., in press). Whilst many PE teachers already challenge a one-size-fits-all approach and engage in critical and reflective practices informing their pedagogical decisions and embrace diverse ways of learning in movement, it is our hope that such implementations will serve to further challenge the primacy of visual and auditory instruction, command styles of delivery and ableist practices (whether intentional or not) as identified in our vignettes.

In concluding, we acknowledge that tensions remain around research that focuses on the embodied experiences of disability. For some scholars in the field of disability studies, such an 'individualising' approach diverts attention from the collective struggle for equality and structural change advocated by the social model of disability making little material difference to disabled people's lives (e.g. Finkelstein, 1996; Barnes, 2020). However, through the vignettes offered in this paper we hope to demonstrate how taking a sensory approach to exploring disabled embodiment contributes in exposing structural ableism in sport and PE challenging hegemonic pedagogical practices helping to enrich and empower disabled peoples experience in these settings.

Note

1. Ethical approval was gained from the affiliated institution of each author. Written informed consent was obtained from participants and pseudonyms assigned in vignettes.

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