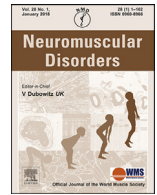




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We don't have to be dowdy just because we are disabled: Summarising the problems encountered by people with limited mobility in finding and buying practical and stylish clothes

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ABSTRACT

This paper explores how people with limited mobility choose and buy clothes, and how this could be improved, both for them and for retailers. It reports on an online survey carried out May-September 2023, asking people with limited mobility about their experiences, shows the practical difficulties they encounter and makes recommendations for retailers to improve their offer and reach to this group of consumers.

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1. Introduction

In 2019 I became a full-time wheelchair user and started to navigate the world from a different perspective. This included working out which clothes were practical to wear in a wheelchair, allowing enough movement to allow me to transfer from one seat to another, to stay warm when exercising less, and to enable me to continue to present myself to the world as a full citizen. As I worked through this process, adapting both what I wore and individual items of clothing, I assumed these problems were not unique to me and wondered whether anyone was addressing them. This paper shows how I explored these issues and the conclusions I have reached.

The fashion industry is starting to become more aware of diversity, and recognising that this includes people with disabilities [1] with different solutions including:

- showing clothes on models with obvious disabilities
- involving people with disabilities in the design and production of clothes, to ensure they really are accessible.
- the development of specialist adaptive clothing brands

These are all positive steps to be welcomed and there has been some scoping of these issues [2] which acknowledges:

Clothing is an important aspect in our lives that help us fulfil social or cultural roles, and can indicate social status or convey individual, occupational or sexual differentiations (Esmail et al., 2018). *In societies where individuals have the choice of what they wear, clothing can also be an important aspect of self-expression and personal style* (Flugel, 1976).

There are a few references to the practicalities of individual items of clothing and how individuals with limited mobility choose and buy clothes, such as Kabel et al. [3] or can benefit from specially designed clothes (Wang et al.) [4]. I wanted to

explore this in more depth to develop an understanding of how manufacturers and retailers could improve their offer to people with limited mobility (Rothery [5])

2. Methodology and data collection

Information was collected through an online survey 'What do you wear in your wheelchair?' from May-September 2023, aimed at people with limited mobility. The survey asked questions about:

- Mobility and gender
- Experiences about particular types of clothes – trousers/pants, tops, skirts and dresses – and detailing such as type of fastening, placement of pockets, width and length of skirts, preferences for sleeves
- Experience of specialist adaptive clothing
- Making alterations and adaptations to clothes
- Experiences of shopping, both instore and online

The questions were tested by two people with no previous knowledge of this area who pointed out inconsistencies and unclear questions, and helped create a more coherent questionnaire, which was hosted on Google forms.

The survey was launched at the Muscular Dystrophy Support Centre Open Day on 20th May and ran until the end of September. It was publicised by the Muscular Dystrophy Support Centre, Muscular Dystrophy UK and Spierziekten Netherlands (supporting people with Muscular Dystrophy) through case studies /articles in newsletters. It was also publicised on social media (twitter/X, LinkedIn, Facebook) and by word of mouth, to people with a range of mobility problems. The survey did not ask about the reason respondents had limited mobility and from the answers there were a range of disabilities represented, although the majority had some form of Muscular Dystrophy. Between 20 and 25% of

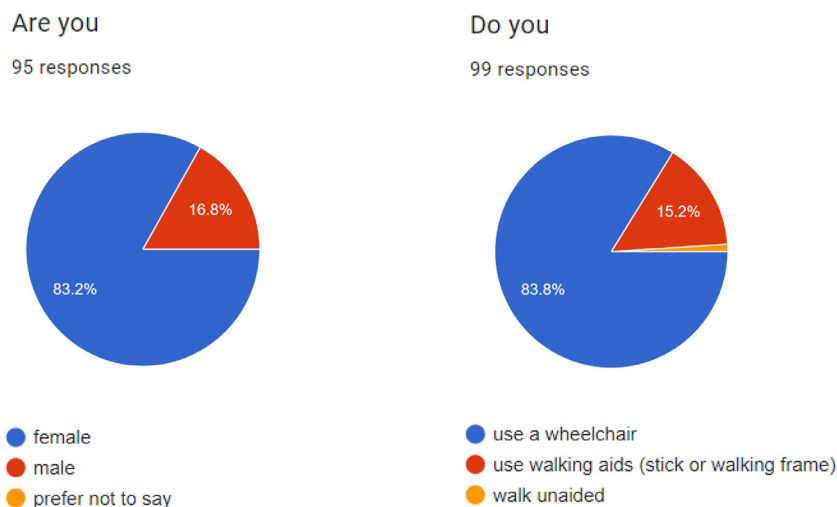


Fig. 1. Characteristics of respondents. (For interpretation of the references to colour in this figure, the reader is referred to the online colour version of this article.)

the free text responses were in Dutch, so were reached through Spierziekten Netherlands, and these responses were translated into English using Google Translate.

Google forms automatically produces graphs and charts to show responses to specific questions, as seen in Figs. 1–5.

The survey only asked individuals about their gender and level of mobility, to reduce the amount of data which could be used to identify individuals, and to allow more questions about clothes and shopping. However, there were sections where individuals could use free text that sometimes provided information which could be used to identify them, such as the individual who described themselves as a carer. Some of the free text has been edited before being quoted, to prevent identifying individuals, but the data in the tables show all the responses.

There were 100 respondents to the survey, of whom 80 were women, 15 were men and 5 chose not to answer that question. It was possible to identify individual responses by gender but, with the exception of the section on dresses and skirts, there were no differences in the responses (Fig. 1).

The survey asked about how mobile respondents are, but did not ask the reason for their lack of mobility. The respondent who could walk unaided was a carer reflecting on behalf of a family member who used a wheelchair.

3. Results

The survey asked questions about specific types of clothing, what was easy to wear, including dressing and undressing, and whether there were particular problems with different styling and detailing.

Bottoms – trousers, jeans, joggers, leggings and other pants (Fig. 2).

94 people said they wore trousers and went on to say which styles they found easy to wear. Almost all respondents could wear trousers with an elasticated waist, about 25% of respondents could easily wear trousers with a front zip fastening but a similar number said these were impossible to wear and very few respondents could easily wear trousers with a side zip.

The survey asked about pockets on trousers, exploring what is most useful and accessible when sitting down. 34% of respondents said they didn't like any kind of pockets in trousers because they are bulky, cause chafing or are in the wrong place. 36% respondents said they liked hip pockets at the front of trousers whereas only 8 respondents said they liked patch pockets, usually found on the back of jeans or similar trousers. This reflects my

experience that anything in these pockets falls out very easily, particularly when getting undressed. About 20% of respondents liked pockets in the side seam, or patch pockets on the side of the trousers, often found on cargo trousers and some types of work wear.

Sitting in a wheelchair means that there is more pressure on the waistband and hips, and that the waist is often too low at the back, which can be cold. 76% of respondents preferred a high waistband, ie one that sat on the waist.

When it came to trousers, respondents had a number of priorities which were:

- fabrics which stretched
- were easy for transfers between different seats (not corduroy which tends to stick)
- trousers that fitted well
- easy to get on and off,
- had fastenings that were easy to manage (particularly with weak or arthritic hands)
- that did not get caught in their wheelchair, or create a trip hazard
- with pockets in the *right* places.

The survey also asked about wearing shorts and found that only 23% of respondents could find shorts that were comfortable to wear in a wheelchair.

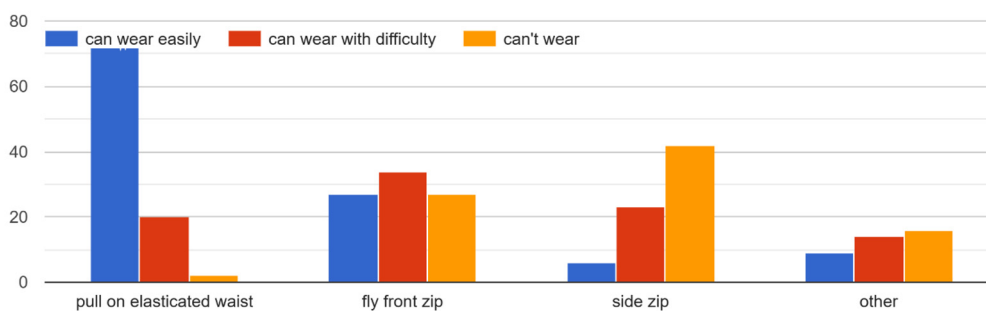
Although nearly half of respondents did not want to wear shorts, those who did found that most shorts were too short, showed more leg than they wanted and were uncomfortable in hot weather when their skin would stick to the seat of their wheelchair.

Tops – t-shirts, sweaters, hoodies, cardigans, shirts/blouses (Fig. 3).

Many people with limited mobility have limited strength or movement in their arms and shoulders which affects what they wear and how they put it on. The survey asked how people put tops on and found that some people had distinct preferences, with 46% preferring to put clothes on over their head (like a sweater), 40% preferring to put clothes on from behind (like a coat or cardigan) and remainder not thinking about it ie it wasn't an issue for them.

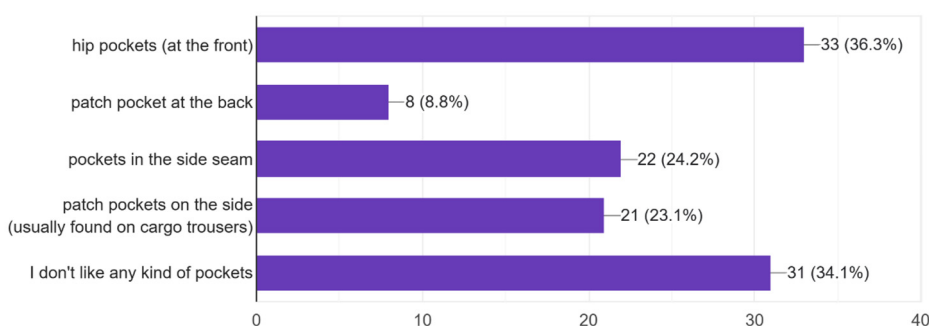
The survey asked about fastening garments – cardigans, shirts, blouses – and found that while 45% could fasten and unfasten front buttons and zips, 28% were unable to do so. When it came to items with shoulder buttons 75% of respondents said they were unable to fasten and unfasten them, and only 12% could do so easily.

What kind of trousers do you find easy to wear?



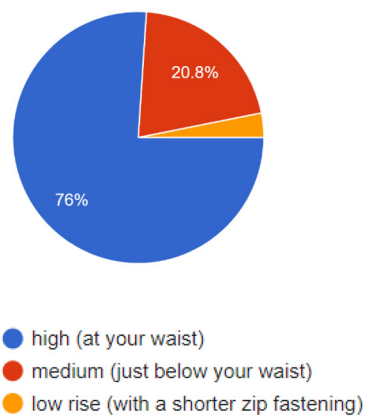
What kind of pockets do you prefer / find useful?

91 responses



What height waistband do you prefer?

96 responses



Can you find shorts that are comfortable in a wheelchair?

98 responses

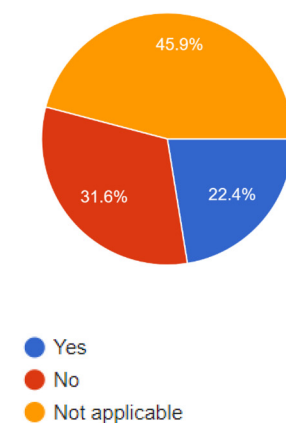


Fig. 2. Responses re trousers, jeans, joggers, legging and other pants. (For interpretation of the references to colour in this figure, the reader is referred to the online colour version of this article.)

Arranging collars and hoods is also impossible for 45% of respondents with only 27% saying they could do this easily.

The survey asked ‘are there styles of sleeves that you find difficult to wear, and why?’ and respondents said:

- Tight sleeves are uncomfortable, particularly for people who self-propel themselves in a manual wheelchair
- Wide/baggy sleeves can get caught up in the wheelchair: similarly floaty arms or anything that trails down is impractical
- Off the shoulder and strappy tops are difficult if you have weak shoulders

- Buttons and other fastenings are often difficult to manage

Skirts and dresses

40 respondents, including all the men, said they didn't wear skirts/ dresses so there were only 60 respondents to this section.

The survey asked about the length and style of skirt that individuals could wear. Very few (less than five) wore mini-skirts and generally most respondents preferred longer skirts, with the most popular being mid-length. Respondents also preferred A-line or full skirts, with less than ten able to wear pencil skirts (Fig. 4).

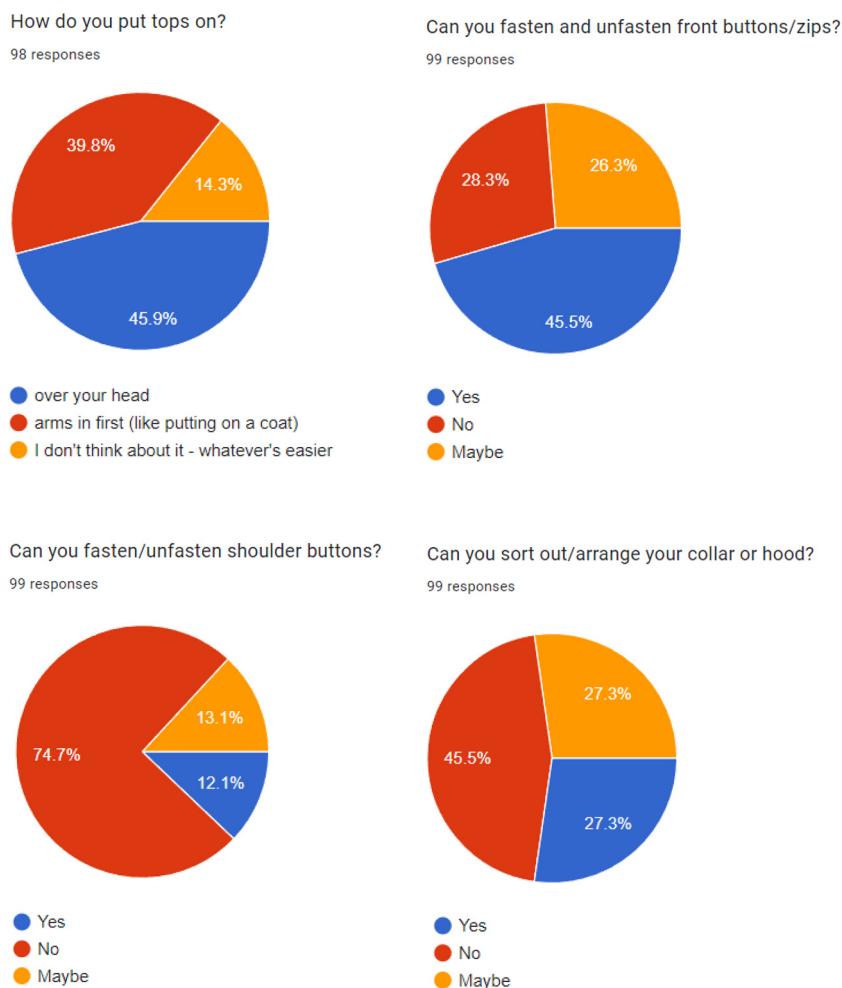


Fig. 3. Responses re tops – t-shirts, sweaters, hoodies, cardigans, shirts/blouses. (For interpretation of the references to colour in this figure, the reader is referred to the online colour version of this article.)

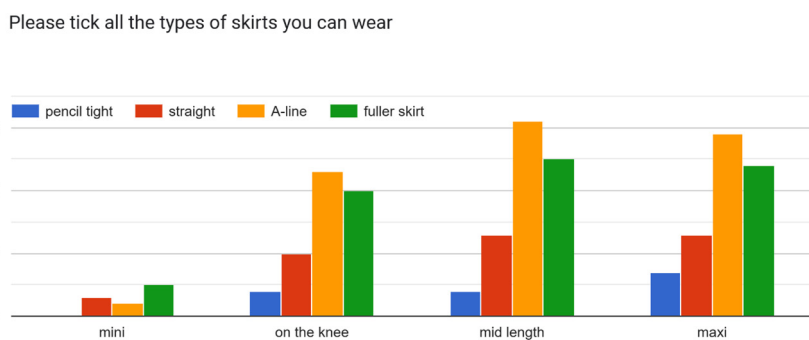


Fig. 4. Responses re skirts/dresses. (For interpretation of the references to colour in this figure, the reader is referred to the online colour version of this article.)

Skirts/dresses that button down the front were particularly unpopular because they tended to gape and some people found the buttons difficult to fasten.

Respondents were also asked whether they preferred skirts to dresses and 43 people replied, mostly saying they preferred dresses to skirts because they tended to stay in place rather than twisting round or bunching up at the waist, and were generally more flattering and forgiving.

The Shopping Experience

The survey found that 49% of respondents shopped online, with many people saying shops were difficult to access or the shopping experience was simply too tiring. What was particularly striking

was that 65% of respondents said they did not use (accessible) changing rooms in stores (Fig. 5) because the changing rooms were:

- Too small for a wheelchair and a carer
- Had inappropriate seating (usually too low), or the individual needed a hoist
- Sometimes used as a general store room so inaccessible
- Some people wanted their carer (male partner) to come with them to help but the changing rooms are single sex so inaccessible. A larger unisex changing room at the entrance to the changing area would be more useful for some people

Do you use changing rooms in stores?

97 responses

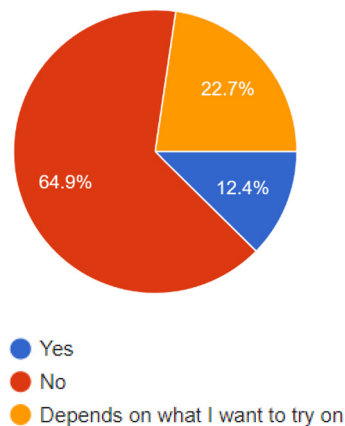


Fig. 5. Use of Changing Rooms. (For interpretation of the references to colour in this figure, the reader is referred to the online colour version of this article.)

The survey asked about specialist adaptive clothing brands and 20 respondents had used them, citing Bombini tribe jeans, IZ adaptive, Liberare bras and Pien en Polle as brands they would recommend, even if they were expensive. Poonia and Pinki [6] make a number of practical recommendations about what should be considered when designing adaptive clothing.

The survey also asked about alterations and adaptations and 40% of respondents said they had made alterations to clothes, mostly altering the length but also changing fastenings, removing loops or similar detailing likely to get in the way, and sewing up splits where they were likely to gape.

Finally, the survey asked respondents if they had any other comments about choosing clothes for wheelchair living, and they said:

Finding fashionable clothes

- Need adapted clothing not exclusively for old people and some key fashion pieces
- We don't have to be dowdy just because we are disabled
- Make them trendy!
- Need more fashionable easy dressing
- It's hard to find clothes I like that are fashionable.
- I would like to wear more modern colourful clothes.
- Make them look like regular clothes, we are not all senior citizens

Styling

- Really difficult to look smart in a w/chair. Tops and jackets that are the right length standing up look crumpled and messy sitting down. I could probably do with some advice!
- Longer backs on top plus slits on the side of tops so you don't have a bulge of fabric at the hip when sat down
- Long vests and jackets are difficult to put on, as you are supposed to sit on it partly. I prefer vests and shirts that are not tight at the bottom, since they tend to crawl up when seated.
- Find a modern winter coat where I sit comfortably in my wheelchair.
- I have had family members and friends who require to use a wheelchair both full time and partially, and I am well aware of the challenges of suitable clothing for wheelchair users. Floaty sleeves, loose fabric and longline garments all become problematic as they can get tangled in the wheels.

- Ensuring they are comfortable to wear when sitting and don't get in the way of the wheelchair especially when transferring.
- Comfort is essential for both wearing and putting on so clothes need to be stretchable and allow for movement.
- Easy closures are important, but velcro and magnetic buttons are not always user friendly. Velcro often stops sticking after a while, and magnetic buttons often come undone when the fabric is pulled. I prefer magnetic zippers with a loop, so you can pull it up (and down) using one finger.
- Lots of trousers will create loads of material in your lap - not a good look!

Pricing

- More expensive clothing brands tend to make more accessible clothing which is of course another disability expense (not one people traditionally think of?).
- Being affordable would be great!

Information to help choose items

- The saddest thing is after 8 years I've learned what will most likely work, but it's always trial and error. Even models sat down properly on a chair would give an idea in the photos. But they're always perched and you cannot tell. Wheelchair models or even sat down ones would have helped me (would still help!) learn what works/doesn't more quickly.

The Shopping experience

- Trying anything on in-store is v difficult - insufficient space, poor staff support so need a companion and time consuming.
- Shopping in person is a pain so I order sizes online to try at home.
- Shopping for clothes is particularly challenging as typically the aisles in clothes shops are not thought out for wheelchair users - you end up accidentally catching garments on display on the wheelchair and cannot manoeuvre with ease, it makes it challenging for a wheelchair user/carer. As well as, many shops do not have disabled changing rooms, and are typically narrow. This undoubtedly makes it difficult and overwhelming for both wheelchair users and carers also.
- It is difficult, frustrating, expensive, time consuming. I hate clothes shopping.V
- Just that it's one of the things I find hardest about living with LGMD in a wheelchair - trying to find clothes that make me feel good, fit well, are comfy and easy to get on/off...feels like I'm looking for a unicorn!

4. Conclusions

The findings of this study clearly show the problems people with limited mobility experience in choosing and buying clothes, and that many of them want to buy fashionable clothing which other people of their age are wearing. The quotes above show the strength of feeling around this issue, recognising that the clothes we wear are an important part of our identity and how we present ourselves to the world. The survey only asked about trousers, tops and skirts/dresses and did not ask about clothes for wearing outside, nor special occasions, nor footwear, but some of the responses alluded to difficulties in this area too.

In conclusion, it is very clear that finding stylish, practical and affordable clothing is important to but difficult for many people with limited mobility, and that they find the whole shopping experience difficult, tiring and off-putting.

Reasons for fashion industry lack of awareness.

There are several factors which could contribute to this which are:

- The fashion industry tends to focus on designing clothes for young, slim people and is only just starting to consider diversity in all areas (Farra Vogue August 21) [7]
- Until an individual experiences life with limited mobility they are unlikely to notice clothing as an issue, and there appears to be very little in the literature about how people adapt to disability and clothing and how it contributes to creating and maintaining an identity (Agmon, Sa'ar, Araten-Bergman 2016) [8]
- There may also be an assumption that people with disabilities want to use their clothing to hide their physical imperfections (Curteza 2014) [9]. In the survey two people spoke about wanting to hide their catheter bag, but no mention of hiding imperfections, other than people who didn't like their legs etc., in the same way that many people in the general population dislike some aspects of their appearance.

Recommendations

The fashion industry could address this by taking the following actions:

- Recognise the size of the market – over 1.2 million people [10] in the UK who struggle to find the clothing they want.
- Involve disabled people in designing your products and the store environment, asking them what they want to see. If using them as consultants pay them the going rate for the work.
- Focus on the clothes that people with limited mobility find easier to wear – trousers, mid-length dresses and tops with plainer sleeves. Design these to be accessible, paying attention to fastenings and detailing.
- Educate your design teams so they understand the difficulties people with limited mobility face choosing clothes, and can design accordingly.
- Show that you are thinking of this market – use images of models sitting down to show what the garment will look like in a seated position.
- Make the in-store shopping experience easier, checking for step-free access, automatic doors and aisles that are wide enough for a wheelchair (or a child's buggy)
- Educate your customer service staff in how to offer practical support to people with limited mobility rather than making assumptions about what they need.
- Reduce returns by making store changing rooms accessible – make them big enough and free of junk, provide a fixed bench or similar for changing, taking advice from an Occupational Therapist. Put the accessible changing room at the entrance and make it unisex, so an individual can go in with their partner/carer to help them try on the garments.

In summary: if the fashion industry, or individual retailers, can design modern, stylish clothes that are easy to wear for people with limited mobility, and improve the overall shopping experience they will reach a larger market and increase sales.

Declaration of competing interest

I can confirm that I have carried out this work without funding or influence from any academic or commercial organization.

CRedit authorship contribution statement

Sheila Hawkins: Investigation, Methodology, Project administration, Software, Writing – original draft, Writing – review & editing.

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References

- [1] Haines A. The fight for adaptive fashion: how people with disabilities struggle to be seen. *Forbes Mag* 2021. [Accessed 11th December 2023 14.49] at: The Fight For Adaptive Fashion: How People With Disabilities Struggle To Be Seen (forbes.com).
- [2] Esmail A, Swaine B. The role of clothing on participation of persons with a physical disability: a scoping review. *Appl Ergon* 2020;85. [Accessed 13th December 2023 14.24] The role of clothing on participation of persons with a physical disability: A scoping review - PubMed ([nih.gov](https://pubmed.ncbi.nlm.nih.gov/)).
- [3] Kabel A, Dimka J, McBee-Black K. Clothing-related barriers experienced by people with mobility disabilities and impairments. *Appl Ergon* 2016;59(Part A):165–9. March 2017. [Accessed 2nd January 2024] at: <https://www.sciencedirect.com/science/article/abs/pii/S000368701630196X>.
- [4] Wang Y, Wu D, Zhao M, Li J. Evaluation on an ergonomic design of functional clothing for wheelchair users. *Appl Ergon* 2014;45(3):550–5. May. [Accessed 2nd January 2024 15.17] at: <https://www.sciencedirect.com/science/article/abs/pii/S0003687013001506>.
- [5] Rothery, M. Fashion needs to make room for adaptive design. (2022) *i-D magazine* [Accessed 11th December 2023 14.54] at: Opinion: Fashion needs adaptive design to accommodate Disabled people ([vice.com](https://www.vice.com)).
- [6] Poonia N, Pinki. Adaptive clothing for disabled people. *Int J Home Sci* 2020;6(2):238–41. [Accessed 13th December 2023 14.38] at: [6-2-21-378.pdf \(homesciencejournal.com\)](https://www.homesciencejournal.com).
- [7] Farra E. This is what's missing in fashion's inclusivity movement. *Vogue Mag* 2021. [Accessed 11th December 2023 14.52] at: Fashion's Inclusivity Movement Is Missing Adaptive Fashion for Disabled People | *Vogue*.
- [8] Agmon M, Sa'ar A, Araten-Bergman T. The person in the disabled body: a perspective on culture and personhood from the margins. *Int J Equity Health* 2016. [Accessed 13th December 2023 12.44] at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5024466/>.
- [9] Curteza A, Cretu V, Macovei L, Poboronicu M. Designing functional clothes for persons with locomotor disabilities. *AUTEX Res J* 2014;14(4). [Accessed 13th December 2023 14.09] at: Designing Functional Clothes for Persons with Locomotor Disabilities (degruyter.com).
- [10] Home /facts and figures about disabled people in the UK disability sport (2014) [accessed 14th May 2023 15.27] at: Facts and Figures About Disabled People in the UK (disabilitysport.org.uk).

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