The Adaptive Clothing Resource Guide

This project is a collaboration between Vanderbilt’s Wond’ry Center for Innovation, Fashion is for Every Body, & Community Partners.
Our goal is to educate tailors and designers about tools and techniques for altering/adapting clothing for people with disabilities and/or mobility issues, thus empowering people of all abilities to advocate and freely express themselves through fashion that fosters independence.
“Create a guide for tailors to show them adaptations and explain why something needs to be done the way it’s done.”

-Kieran O’Brien Kern @kieranobk
Fashion is for Every Body founder Alicia Searcy strives to give back to the disability community with resources that help others live their best lives. All clothing should be adaptive for whatever life brings.

“This is as much a tool for disabled people as it is for the people helping them, because it provides a frame of reference to say I need these snaps here. I need these hooks here. I need this zipper.”

–Alicia Searcy

This guide aims to help all.
This guide is written in honor of Kimmie Jones 1983-2017

“Kimmie Jones was a founding member and enthusiastic supporter of Fashion is For Every Body. Born with muscular dystrophy and wheelchair dependent, she participated in our inaugural runway show and was instrumental in turning an idea into an official nonprofit organization. Kimmie passed away in 2017 but we honor her legacy through this guide.”

-Alicia Searcy, fashionisforeverybody.com @spashionista
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Overview of Disability Population</td>
<td>6</td>
</tr>
<tr>
<td>Main Challenges</td>
<td>9</td>
</tr>
<tr>
<td>Diminished Dexterity</td>
<td>12</td>
</tr>
<tr>
<td>Medical Device Access</td>
<td>15</td>
</tr>
<tr>
<td>Sensory Accomodations</td>
<td>17</td>
</tr>
<tr>
<td>Limb Differences</td>
<td>20</td>
</tr>
<tr>
<td>Visual Differences</td>
<td>23</td>
</tr>
<tr>
<td>Overview of Adaptive Features</td>
<td>26</td>
</tr>
<tr>
<td>Pockets</td>
<td>27</td>
</tr>
<tr>
<td>Magnets</td>
<td>30</td>
</tr>
<tr>
<td>Hook &amp; Loop</td>
<td>35</td>
</tr>
<tr>
<td>Zippers</td>
<td>38</td>
</tr>
<tr>
<td>Elastic</td>
<td>40</td>
</tr>
<tr>
<td>Pant Modifications</td>
<td>43</td>
</tr>
<tr>
<td>Shirt Modifications</td>
<td>44</td>
</tr>
<tr>
<td>Brand Resources</td>
<td>45</td>
</tr>
<tr>
<td>Contributors</td>
<td>48</td>
</tr>
<tr>
<td>References</td>
<td>49</td>
</tr>
</tbody>
</table>
“Disability isn’t a curse. The lack of an inclusive society is.”
- Alesha Savannah
In 2019, the United States Census Bureau reported over 78.2M people have a disability.

<table>
<thead>
<tr>
<th>Disability Type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing difficulty</td>
<td>11.4M</td>
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</tr>
<tr>
<td>Vision difficulty</td>
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</tr>
<tr>
<td>Cognitive difficulty</td>
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<td>20%</td>
</tr>
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<td>Ambulatory difficulty</td>
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<td>Self-care difficulty</td>
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<td>10%</td>
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<tr>
<td>Independent Living difficulty</td>
<td>14.7M</td>
<td>19%</td>
</tr>
</tbody>
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Overview of Disability Population

VOGUE BUSINESS

COHERENT MARKET INSIGHTS

Estimates the global Adaptive Clothing market value at $334.5 billion in 2021, forecasted to readjust to $400 billion by 2026 with a CAGR of 4.9%.

https://www.voguebusiness.com/consumers/adaptive-clothing-differently-abled consumers liked tommy-hilfiger
https://www.coherentmarketinsights.com/market-insight/adaptive-market-2294

1 in 4 live with a disability
Main Challenges with Adaptive Fashion

“My biggest issue is fatigue. After trying to get on a shirt, I have to build strength to get my pants on.”

-Allie Schmidt
Clothing Challenges for People with Disabilities

There are limited adaptive fashion products, and the ones that exist often do not express the personality of those who need them.

Current adaptive solutions do not serve all the needs of people with disabilities.

Putting on non-adaptive clothing can be time consuming and exhausting.

Tailors often lack knowledge about and can be intimidated by the challenges of adaptive modifications.

Tailoring and customization is expensive and time consuming.

Research about how to adapt clothing falls on the consumer.

People with disabilities struggle to dress professionally because non-adaptive clothing can be so difficult to get on.

Most people with limited dexterity cannot do the pinching motion required for wearing many pieces of non-adaptive clothing.

Online shopping often does not offer adaptive fastener options.

Online shopping can make finding workable clothing for people with disabilities very difficult.

Some fabrics evoke anxiety in people with sensory issues.

There is a lack of adaptive jewelry including snap on earrings and necklaces.

Pockets can be disability friendly, but many garments lack them.

It is challenging to find pants and tops with adjustable lengths for those with limb differences.
Start with the question “How may I help you?”

“What kind of adaptations can I make that will serve your needs? It’s more about the interaction than the actual words.”

-Alicia Searcy on how to start the dialogue
“Fatigue sets in just from getting dressed. Getting dressed is exhausting.”

– Lissie Cox
**Challenge: Getting dressed takes too much time and energy**

It can be mentally and physically draining for individuals with diminished dexterity to dress themselves, including difficulty using buttons, zippers, and some pockets.

**Considerations for alterations may include:**

- Replace buttons with magnets or velcro.
- Attach loops in specific locations for easy take on and off.
- Add loop fasteners to zippers.
- Include pockets to make it easier to take clothing off.

**Options for easy on/off products**

- Magnetic Jewelry closure
- FlyEase Go
- One handed belt
- Dressing Stick aids in dressing
Diminished Dexterity
Current Options

Many brands offer a magnetic placket closure as an alternative to buttons. Be mindful of the neck opening for magnet placement & wearer comfort.

Some brands place hook and loop behind the front button placket for a dignified appearance without the hassle of buttons. It can be difficult to align hook and loop with limited dexterity.

Eric Adler’s bespoke adaptive pants made for client Alicia Searcy feature a higher back rise and bias yoke for fit and style with accessible snap.
**Challenge: Clothing is not catered to this need**

Inefficiency and difficulty in daily life with ill-functioning clothes. Time and energy could be focused on life rather than clothing.

**Considerations for alterations may include:**

- Slits that are placed in the correct location including shoulders, chest, and appropriate side(s) of the abdomen.
- Include pockets to hold necessary medical supplies.

**Current adaptive options**

Brands offer PICC line covers and shirts with chest port access for patients.

Brands offer seated trousers and double-layer dresses with port access.
Medical Device Access
Adaptive Options

Some brands offer full sleeve access with choice of snaps, magnets, or VELCRO® closures. Discuss the best option for the end user.

Use high quality knits for softness. Use snaps or other preferred closure for ease of access.

Zippers or other closures with multiple access points may be needed for different treatments.
“Because my skin is super sensitive to materials, some days my clothes hurt. Some clothes these days are made super soft. I need them without tags. The seam placement is super important to me. Some days clothes hurt me very very very badly.”

–Mary Fashik
**Challenge: Irritation from specific aspects of clothing**

Seams, tags, dimensional patterns or appliques, or the fabric itself that clothing is made from may invoke tender spots or sores for those with sensory disabilities.

Individuals who are seated in wheelchairs may have increased sensitivities.

**Strategically place seams when altering garments to ensure:**

Seams and trims do not irritate to the wearer.

Remove tags or create heatseal versions.

**Current options for sensory accommodations**

- Seamless knits
- Tagless Labels
Seams may cause pressure points for those in prolonged seated positions. Mindfulness of seam placement and proper fit reduces tenderness and potential sores.

Some brands offer pants for those in wheelchairs to reduce the pressure points caused by pockets and low yoke risers. Avoid excess fullness for aesthetics.

Studies have shown that compression and weight may provide relief for sensitivities. Try incorporating into garment core or hemlines.
“Experiences with tailors may be “gruff” & “business minded.” Some feel vulnerable & exposed going to tailors that act in this manner. Tailors possess the knowledge & capabilities to alter clothes adaptively, but some clients prefer a more intimate, sensitive approach to their tailoring experience.”

–Elizabeth McGuire
**Challenge: Extra fabric on arms or legs causes discomfort & difficulty**

Extra fabric may cause risk in mobility.
Prosthetics need additional ease in garments to accommodate them.
Garments do not fit individual needs & are not customizable.

**Alterations in cuff and hem lengths**

Tailors may alter lengths.
Be careful to replace original details after completing alterations.
Wearers enjoy accurately fitting garments that meet their lifestyle needs & provide the appropriate functionality for the demands of daily life.

**Current options for limb differences**

Many sportswear brands offer zip off legs, like thenorthface.com & llbean.com

No-limits.com offers access to prosthetics via vertical leg zip & dimensions that accommodate prosthetic measurements

Limb Differences

The Adaptive Clothing Resource Guide 21
The goal: to make the right cuff end at a length that hits her wrist at approximately the same point as her left sleeve. For the cuffs shown in this garment, this alteration included seam ripping to remove the cuff, cutting the sleeve shorter, and sewing the cuff back on.
“Fashion is so much more than its visual aspects. It’s possible to enjoy and have a passion for fashion while having low or no vision. There are so many visually impaired people out there who can advocate this message.”

-Elin, myblurredworld.com
**Challenge: Difficulty identifying clothing**

Offering different textures allows sensory definition of clothing, aiding getting dressed and having a pleasing appearance.

Mismatched clothing is a concern for those with limited vision.

*Include mindful design in every detail*

Touch becomes a priority in clothing identification.

Prioritize the task of choosing and using a specific arrangement of textiles in the design process.

Use different/unique textures/textiles in garment construction so that individuals can apply sensory definition of clothing and be able to match and coordinate their items.

Detailed fabric descriptions can help online shoppers understand the design approach to clothing for people with visual differences.

**Options to aid in garment recognition**

- Textured dobbi
- Hopsack Tweed
- Textured buttons
- Garment details Vince pleated trousers
Visual Differences
Current Options

Elin of myblurredworld.com chose a high-neck white silk blouse with vertical pleats based on the detailed online description. She feels “elegant” in the garment.

Some brands use braille as a design detail. QR codes enable custom apps to read the design details aloud.

Gracie Benedith created braille patches to help those with visual impairments get dressed. Find this product at Pattiandricky.com.
“People are waiting for us to not look good, so we have to work to go further in the other direction. I need to dress professionally for what I do. Professional clothing is harder to put on. People with disabilities usually don’t dress professionally because the clothes are so hard to get on.”

-Gabrielle Ficchi
“Very few of my purses work with my scooter. I need an external pocket to hold my phone, keys, and metro card. As a wheelchair user and a small female, I don’t want to attract attention by looking for something for too long.”

–Kieran O’Brien Kern
**Challenge: Hand-warmth & Storage**

Carrying things.
Storage.

**Alterations: Add functional pockets**

Add uniquely designed and fitted functional pockets.
Individuals can be hands-free, removing the need for a handbag.
Curved pockets.
Magnetic fasteners.
Add lining for extra warmth.
Place pockets in specific locations to provide support and relief for the upper body.

Open Style Lab Hack+Ability Pocket Kit: [www.openstylelab.org](http://www.openstylelab.org)
Adaptive pockets provide storage & hand warmth. Pockets can allow one to be hands-free and remove the need for a bag. These pockets are lined with a recycled cashmere sweater to increase their feel and comfort.

Some brands offer pants with pockets on the front thigh. Consider this functional design approach to create easy access for those seated all day for whom side thigh pockets are not accessible.

Peach’s Bag is custom made to buckle around her waist, strap to her chair, or attach to her bike for ultimate access and adaptability.
“Magnetic snaps can have different strengths. Choosing the right snap for various degrees of hand dexterity is important because people with limited dexterity may not be able to separate stronger magnets. In choosing magnetic snaps, be sure to balance magnet strength with hand function.”

-Alex Sargent Capps
Magnets and magnetic snaps

**Challenge: Closures can be difficult for those with diminished dexterity**

Magnetic force can stick to metal sewing tools.
Magnetic strength can affect medical devices.
Magnets may stick to metal washers and dryers in laundering.

**Alteration: Finding balance of strength**

Each individual will have specific needs depending on their hand strength.
Magnets should fasten securely. Be sure the wearer has the hand dexterity to open them.
The plastic covering around magnetics protects them against rusting, holds them in place, and makes it easier to sew them into garments.
Once sewn in, the strength of the magnets will vary depending on the fabric type, including its fiber and weave.

**Options for magnets and magnetic snaps**

https://www.wawak.com provides square, round, and sewable magnetic snaps.
Magnet Adaptive Options

This shirt cuff was shortened to accommodate limb difference. A magnet replaced the button. A piece of felt on top of the magnet lessens the attraction to allow the wearer to open and close the shirt cuff using one hand.

Large magnets can work well on thicker garments, including outerwear. Be mindful of the placement, so as to make the magnet a more or less prominent design feature of the garment.

Magnets attract ferromagnetic metals such as iron, cobalt, steel, nickel, manganese, gadolinium, and lodestone. Be mindful of pacemakers.
### Magnet Resources

**Description:** Magnetic Square Plastic Sew on Snaps  
**Size:** 1 1/8” diameter  
**Some Uses:** To replace a button above a zipper; to hold a coat-front in place  
**Positive Attributes:** Sew these on with the sewing machine. They have medium force and can be used on many different projects. This low profile snap does not add significant bulk.  
**Negative Attributes:** A little expensive, but worth the price.  

**Places to Purchase:**  
Joann, Amazon, Wawak

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**Description:** Magnetic square plastic sew on snaps  
**Size:** 0.6” diameter, 0.07” thickness  
**Some Uses:** Cuffs; front plackets; lower sides of pants if it is necessary to cut the inseam or outseam to accommodate leg braces.  
**Positive Attributes:** Low profile/thin, can be used for a wide variety of applications.  

**Places to Purchase:**  
Amazon

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**Description:** Magnetic snaps  
**Size:** .70”/18mm diameter, 3/16 thickness/4.7625mm  
**Some Uses:** To close coats or jackets  
**Positive Attributes:** These snaps have a nice strength to hold a garment together.  
**Negative Attributes:** Must be sewn in by hand

**Places to Purchase:**  
Amazon

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Magnet Resources: Sewing Tips

**For any Magnetic Closures** you can cover the magnets with varying weight fabrics to customize the magnetic pull for the user’s hand strength.

**Description:** Magnetic Square Plastic Sew on Snaps

**Sewing instructions:** These magnets are designed to be machine-sewn in the groove just inside the outer edge. These magnets are easy to sew in, but getting the stitching exactly in the groove takes practice. They work fine even if the stitching is not perfectly in the groove.

**Description:** Magnetic snap magnets

**Sewing instructions:** The sealant around the magnet is a transparent PVC soft rubber that can be sewn through with thread. Do not cut these magnets out of their plastic covering or you will not be able to get them apart. The covering is designed to provide a way to attach them to the garment and for rust protection. You can trim the plastic away where necessary to get them closer to an edge. You will need to use a zipper foot to get around these magnets. Yellow side is positive, silver side is negative. Make sure to have one of each when you sew them into your garment.

**Description:** Magnetic snaps

**Sewing instructions:** These snaps must be sewn-in by hand. There are four equally placed holes around the edges to sew them on. They are relatively easy to sew into place. Gauge thread weight and base how many times you sew through each hole on how much pressure and wear-and-tear these snaps will receive.

For any Magnetic Closures you can cover the magnets with varying weight fabrics to customize the magnetic pull for the user’s hand strength.

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“Designing fashionable adaptive clothing for individuals with special needs is a task that requires careful attention to different body shapes, dexterity, and degrees of mobility.”

- Hyun-Shin Na
Challenge: Closures can be difficult for those with diminished dexterity

Hook & Loop fasteners can be too thick and scratchy, causing discomfort.

Hook may scratch a wearer’s skin if not applied properly.

Hook and loop strips are hard to align.

Alteration:

Consider areas on the garment that may benefit the wearer’s modesty or easy access (pockets, garment alignment).

Be mindful that hook and loop can catch and damage the surface and longevity of a variety of materials.
Hook & Loop Adaptive Options

Hook and loop behind buttons may be used for a professional appearance, adding ease to getting dressed. Keep in mind potential abrasive properties.

Some brands use VELCRO® side closures concealed by the pocket to provide easy on and off. VELCRO® tends to attract lint and lose attraction after wear.

Low profile VELCRO® provides a softer surface for sensitive skin and reduced thickness, ideal for shirt placket closure.
Challenge: Pinching motion can be difficult with diminished dexterity
Pulls without holes do not allow tool access or provide space for adding accessible options.

Alteration: Swap out zipper pulls or zippers
Include hook for fingers to loop through the zipper.
Modify the pull to be accessible with the addition of keyrings, loops, or zipper tools.
Magnetic zippers provide one handed operation.

Current Options:
https://ykkdigitalshowroom.com/en/article/3447-
Zippers Adaptive Options

**RMS Zipper & Button Tool** allows one to both zip zippers using provided hook, and to thread buttons through button holes.

Adding a keyring to the zipper pull enables greater dexterity. The ring may be placed over a button to provide security for the zipper.

Loops and magnets provide dexterity support. A loop allows a finger to pull the waistband closed, helping the magnets to connect.
“Bunching and flipping of elastic is uncomfortable. Too much and it can look like a diaper.”

- Alicia Searcy
**Challenge: Discomfort when elastic is used improperly**

Waistbands constrict if too tight and fall if too large.
Sleeves limit motion if too tight and snag if too large.

**Alteration: Width of the elastic determines comfort or pain**

Waistband: Varying widths of non-roll elastic should be cut at least one inch longer than desired finished waistband measurement. Visual appearance is improved with a flat front and fullness in back.

Sleeves: Varying widths should be cut with at least one inch longer than desired circumference.

Enough stretch is needed for getting dressed, and for comfort over varying periods of time.
Some brands offer pants with smooth fronts and varying back stretch for optimum style, comfort, and fit. Hook and eye provide adjustability.

Some brands offer pants with smooth elastic fronts, faux front fly, and soft stretch back elastic for style without compromising comfort. Featherweight stretch fabric increases ease.

Some brands provide higher waisted, stretch knit pull-on pants with flat, roll-free waistbands.
Pant modifications for seated position

**Standard pants** create pressure points at the yoke, pocket, belt loops, and knees. Notice the dip at the center back due to stress of the limited rise length.

**Adaptive pants** remove pressure points at the yoke, pocket, belt loops, and knees by increasing the back rise. Notice the straightened center back waistband.

Red areas indicate pressure. White areas indicate looseness.

Yoke blended to back panel. Pocket removed. Rise increased vertically & horizontally ~20-25%.

Pattern Adaptations: Note the difference in the original pattern on the left & adaptations on the right including the increased back rise.
Shirt modifications for seated position

**Adaptive shirt** options have shorter fronts than backs, providing ease and modesty for the wearer. Some prefer shirts cropped front & back.

**Flatlock seams** provide a smooth surface and limit abrasion to skin. Use wooly nylon thread for softness and comfort.

**Soft fabrics** provide comfort and performance for the wearer. Tag free designs limit irritation.
“How do you want to educate someone to help them treat me with dignity? I’m wearing tights to be warm, and I’m wearing leopard because I’m a fierce bitch.”

–Kieran O’Brien Kern  📸@kieranobk
Brand Resources

Medical

Ready to Wear

Personalized
Brand Resources

Fashion
- Seven
- Tommy Hilfiger
- Medoris
- No Limbits
- Unhidden
- Jae Bella
- Adaptations By Adrian

Unmet needs
- Petal Back Clothing
- Able2Wear
- SMART Adaptive Clothing
- Befree
- Professional Fit Clothing
- Reboundwear
- Active Adaptive
- Creation Confort
- Comfort Concepts Inc.

Medical
- Personal Touch
- Health Care Apparel
- Medwear
- Patti + Ricky

The Adaptive Clothing Resource Guide
Contributers

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Co-founder and Executive Director of the nonprofit organization Fashion is for Every Body. Our mission is to normalize inclusion in fashion and in life. We use fashion as a language to promote body positivity and self-esteem while seeking inclusion for adults of all ages, sizes and physical abilities within the fashion industry.

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References

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Open Style Lab. https://www.openstylelab.org/


