MoGrip | Mobility Cane Attachment for Wrist Stabilization During Cane Use

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Need

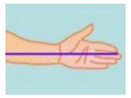
Mobility cane/white cane users experience mild/moderate **wrist pain** during cane use. There are no existing solutions that **prevent wrist discomfort** without **compromising functionality.**

*Ambutech No-Jab Mobility *Cane*

Objective

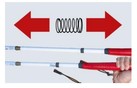
Our objective is to design a **secure, portable cane attachment** to **reduce wrist adduction** and **reduce wrist flexion/extension** to minimize pain during cane use.

Design Inputs



Encourage a **neutral wrist position**, reducing **adduction & flexion/extension** while maintaining sweeping motion

Fits within **portable** profile of cane

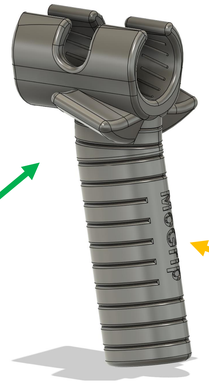


Attaches to existing cane **securely**

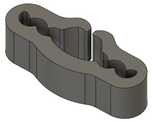
Solution

Head
Outrigged to improve stability; taperer at 2°

Thumb Rests
Additional Grip Supports; Ambidextrous



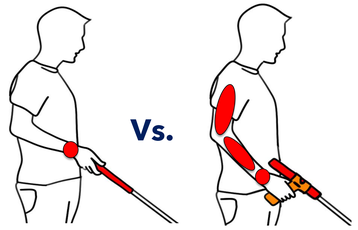
Strap Clasp
Clasp to tighten elastic band around forearm



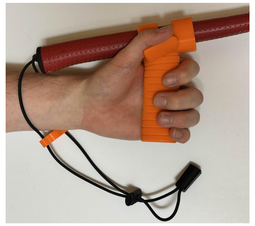
Handle
Follows the contour of the hand 15° to improve wrist position

Intended Use

Muscle Groups Utilized During Use



Traditional Vs. **MoGrip**



Strap clasp increases tactility

Slots onto lower segments of cane

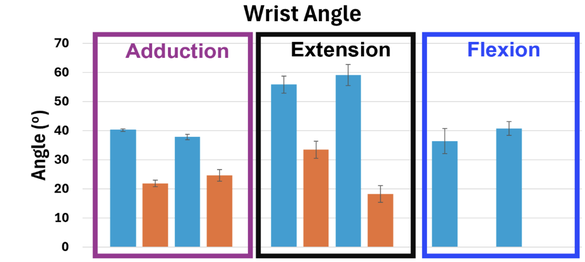
Held with the palm of the hand angled toward the ground

Motion is dispersed throughout the wrist and arm using MoGrip

Verification Testing

Wrist Angle Testing – PASSED

Wrist adduction, extension & flexion were reduced while maintaining sweeping distance



	User 1	User 2	User 1	User 2	User 1	User 2
Traditional	40.2	37.8	55.8	59.1	36.4	40.7
MoGrip	21.9	24.7	33.5	18.3	0.0	0.0

Secure Attachment - PASSED

Achieves a fully compressed No-Jab spring with & without the MoGrip

Uncompressed *Traditional* *MoGrip*

Portability Testing - PASSED

Device is within the correct dimensions to be portable

Dimension	Criteria	Results
Mass	< 81.83 g	72 g ✓
Handle Length	6.5 to 10.5 cm	9.7 cm ✓
Head Width	< 6.25 cm	6 cm ✓

Conclusion

- **Fully 3D Printed/Printable:** $0.92 /device
- Comfortable wrist position that **reduces pain**
- Improves **quality of life** and **user experience**

Future Work

- Explore **other materials and manufacturing methods**
- Improve **strap clasp** design
- Incorporate a not-in-use **carrying method**

Scan QR Code to Watch a MoGrip Demo Video!