

## Madglove: Creating an accessible home-rehabilitation glove to increase independence in people with spasticity

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Madglove is developing an innovative and accessible home-based rehabilitation glove with the aim of mitigating the effects of hand spasticity. A common symptom of neurological disorders (stroke, cerebral palsy (CP), multiple sclerosis, brain injury, spinal cord injury) is upper extremity spasticity, causing muscles to be involuntarily contracted. Due to this, simple tasks such as zipping up a jacket become difficult, or even impossible to do. This drastically lowers a person's independence, participation in society and quality-of-life. We are creating a no-tech, independently usable glove that stabilizes the wrist and dynamically extends the fingers into a position functional for daily activities, increasing a person's capacity to function. The proof-of-concept was conducted with 20 stroke survivors in a pilot study in Romania. Currently, we are optimizing our solution with end-users and experts in the Netherlands. Due to the no-tech approach, the cost of goods can remain low making the glove easily accessible to anyone who needs it. Moving forward, we are conducting a study in collaboration with the Vrije Universiteit Amsterdam, on the use of the latest glove model by individuals with post-stroke-spasticity in their home environment. We are also meeting with CP experts and have given the current glove model to our comprehensive network of dutch rehabilitation clinics. With this feedback, we will optimize the design, and manufacture the final model of the glove the end of 2024. Due to our contacts and the health insurance landscape, the Netherlands is an great market entry point. However, as the number of people worldwide living with spasticity is constantly increasing, our mission is to scale this solution to people around the world, and help them get a grasp on their disability.

### Biography

Madalina Riurean is completing her post-graduate studies at the Vrije University Amsterdam, conducting research focused on neurological rehabilitation and motor learning after brain injury. She is the co-founder and CEO of Madglove Amsterdam BV, an organization focused on creating accessible tools for enhancing the independence and quality of life of disabled individuals. She developed and tested the first prototype of the glove in 2019. The Madglove Amsterdam team got together in 2021, and since then, she has been leading the research and development efforts for bringing the Madglove to market.