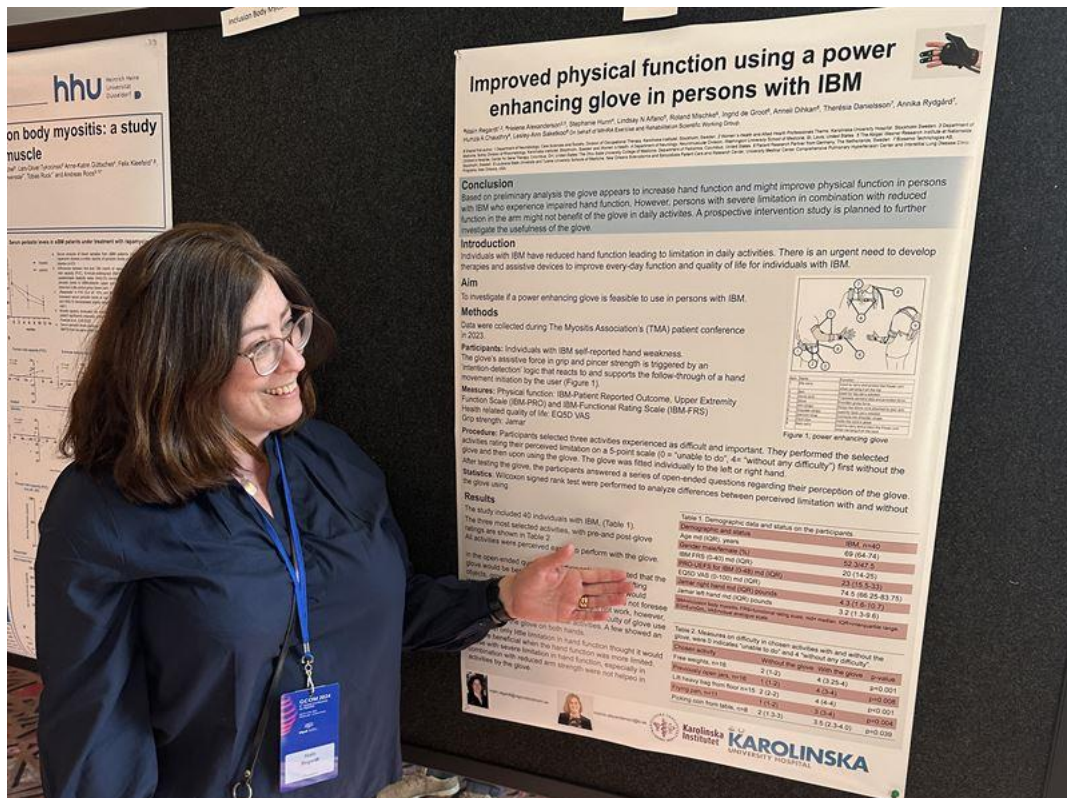


Study shows improved hand function using Carbonhand

Today, a study on Improved physical function using a power-enhancing glove in persons with Inclusion Body Myositis was presented at the Global Conference on Myositis in Pittsburgh, USA. The preliminary results show increased hand function and improved physical function for people with impaired hand function during use of Carbonhand.



Inclusion body myositis (IBM) is an autoimmune disease that primarily affects skeletal muscles with reduced muscle strength and endurance as characteristic symptoms. People with IBM experience challenges in many areas of their lives. Gripping and holding objects as well as fine-motor activities are major parts of the challenges they face. Individuals with advanced IBM have difficulties holding utensils, gripping a glass to drink, holding a toothbrush, dressing, and undressing as well as many other activities of daily living requiring grip.

The study aimed to investigate if a power-enhancing glove is feasible to use in persons with IBM. Data was collected during The Myositis Association's (TMA) patient conference in September 2023. The study was open to people with idiopathic inflammatory myopathies who perceived hand weakness. The analysis carried out is based on people with IBM. To assess the degree of impairment, Physical function (IBM-Patient Reported Outcome Upper Extremity Function Scale (IBM-PRO), IBM-Functional Rating Scale (IBM-FRS)), pain (numeric rating scale), and grip strength (Jamar) were measured. The study included 40 persons with IBM that had reduced grip strength (kg) (md;range) (3.75;1.3-10.7) and physical function (IBM-FRS 20;2-38, IBM-PRO 23;1-44).

The participants selected three activities that they perceived as difficult. The participants performed the activities and rated their ability to perform the chosen activities on a 5-point

scale (0 = “unable to do”, 4= “without any difficulty”), first without the glove and then upon using the glove. After testing the glove, the participants answered a series of open-ended questions regarding their perception of the glove.

The result

All activities were perceived as easier to perform with the glove. The conclusion is that people with IBM can perform activities in daily living more independently when using Carbonhand as an assistive device. The three most selected activities, with pre-and post-glove ratings, are shown in Table 1. In the open-ended questions, participants documented that the glove would be beneficial for use in everyday tasks, lifting objects, grocery shopping, stabilizing the hand, and would increase independence.

Chosen activity	Without the glove	With the glove
Lift a heavy bag from the floor n=15	2 (2-2)	4 (4-4)
Open previously open jars, n=16	1 (1-2)	4 (3-4)
Lifting free weights, n=16	2 (1-2)	4 (3.25-4)
Lifting and holding a frying pan, n=11	1 (1-2)	3 (3-4)
Picking a coin from a table, n=8	2 (1.3-3)	3.5 (2.3-4.0)

Table 1. Measures on difficulty in chosen activities without and with the glove (0=“unable to do”, 4=“without any difficulty”).

About the study

The study is initiated by Karolinska University Hospital, Stockholm, Sweden, in collaboration with Louisiana State University and Tulane University Schools of Medicine, New Orleans, United States, Washington University School of Medicine, St. Louis, United States, The Ohio State University College of Medicine, Department of Pediatrics, Columbus, United States, Deutsche Gesellschaft für Muskelkranke e.V.", DGM, Taunusstein, Germany, Spierziekten Nederland (Dutch patient association for NMD), Rotterdam, The Netherlands, The Swedish Rheumatism Association, Stockholm, Sweden, and Bioservo AB, Stockholm, Sweden.

About Carbonhand

Carbonhand is a medical device in the form of a grip-enhancing glove that enables people with impaired hand function, like IBM, to regain the ability to use their hands. Sensors in the glove send signals to a sophisticated control system that activates motors that pull on artificial tendons sewn into the glove, creating a natural and dynamic grip. Several studies with more than 300 participants show that people with impaired hand function get a sustained and strong grip with Carbonhand, improving the user's ability to perform activities of daily living.

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