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# Torque Balancing Active Wrist Brace

Tech ID: 28743 / UC Case 2015-780-0

#### **BRIEF DESCRIPTION**

An innovative spring-actuated wrist brace that dynamically counterbalances wrist stiffness to assist people with spasticity, such as people with stroke or cerebral palsy, in regaining hand movement.

#### **FULL DESCRIPTION**

This orthopedic wrist brace is designed to aid people with wrist spasticity reduce the muscle effort needed for hand movements impaired by excessive wrist stiffness and resistance to stretch. Utilizing a specialized spring-actuated six-bar linkage mechanism, the device provides adjustable counter-torque to the wrist joint, effectively balancing the increased stiffness typical in stroke patients. This dynamic support enables a wider range of motion from flexion to extension, improving rehabilitation outcomes by easing muscle strain and facilitating smoother hand movements.

#### SUGGESTED USES

- >> Stroke and cerebral palsy rehabilitation therapy for hand and wrist movement recovery.
- >> Orthopedic devices for patients with neurological impairments affecting wrist mobility.
- >> Physical and occupational therapy clinics and rehabilitation centers.
- Assistive technologies for improving quality of life in neurologic patients.
- >> Medical device manufacturers specializing in rehabilitative braces and supports.

## **ADVANTAGES**

- » Significantly reduces muscle force required for wrist and hand movement in patients with abnormal wrist muscle tone.
- >> First active wrist brace to provide negative stiffness counteracting intrinsic wrist stiffness.
- Supports wrist movement in both flexion and extension directions.
- » Adjustable torque compensation tailored to individual patient needs.
- >> Employs advanced six-bar linkage design to ensure smooth, reliable assistive torque.

#### PATENT STATUS

Country	Туре	Number	Dated	Case
United States Of America	Issued Patent	11,331,209	05/17/2022	2015-780
United States Of America	Issued Patent	10,456,286	10/29/2019	2015-780

## CONTACT

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# OTHER INFORMATION

#### CATEGORIZED AS

» Medical

» Rehabilitation

RELATED CASES

2015-780-0

## STATE OF DEVELOPMENT

A prototype has been tested on stroke patients.

## **RELATED MATERIALS**

- » Master of Science Thesis by Derek Michael Bissell, UC Irvine 01/01/2014

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