

# Therapeutic Cutlery for Patients with Brain Damage

## Introduction

Many people who have alternated muscle tone, a neurodegenerative disease, pain and swelling or a loss of force in the wrist have lost an important part of their personal autonomy. These patients are, among other things, in the need of cutlery that they could use themselves.

With a dedicated rehabilitation cerebral plasticity permits neural reorganization and recuperation of lost functionalities of the body. Occupational therapy facilitates the entering of normal moving patterns into the everyday life of the patient, lessening pain, increasing their autonomy and bringing a faster recovery.

## Invention

The invention is a cutlery for patients who have alternated muscle tone, a neurodegenerative disease, pain and swelling or a loss of force in the wrist. These patients are not able to feed themselves with standard cutlery. The vertical handle of the therapeutic cutlery allows the patients to grab the fork with a normal moving pattern of elbow flexion, neutral position of the forearm and wrist extension, avoiding muscle pain.

## State of Development

The device was tested in a crossed clinical study on patients (23) who had an acquired cerebral damage, infantile cerebral paralysis or a neurodegenerative disease. The therapeutic cutlery is fully developed for both right and left hand users.

## Advantages



- The therapeutic cutlery can be used by a very wide range of patients.
- Compared to the standard available options the handle and the cutlery itself are in different planes which ensure the normal muscle movements for the patient.
- Due to the normal movements of the muscles patients have less pain.
- Having less pain and normal movement of the muscles facilitates a faster recuperation.
- Patient empowerment: giving patients an opportunity to independently contribute to their recuperation.

## Application

The main application area of this technology is occupational therapy targeted to people who have:

- Changes in muscle tone: hypertonia, hypotonia, ataxia caused by acquired brain damage, stroke, brain tumors or cerebral paralysis from birth.
- Neurodegenerative diseases: rigidity, tremor caused by multiple sclerosis, amyotrophic lateral sclerosis (ALS), Parkinson's or Huntington's disease.
- Pain and swelling caused rheumatoid arthritis, osteoarthritis, rizarthrosis or carpal tunnel syndrome.
- Weakness or loss of strength caused by broken wrist, Colles' fracture, fractured thumb, Guillain-Barré syndrome or age.

## Market Potential

Research has shown that traumatic brain injury requires long-term care and therefore incurs high economic cost to health care systems. The overall global incidence rate for traumatic brain injury is estimated at 200 per 100,000 people annually.

In the U.S. traumatic brain injury is the leading cause of death and disability for persons aged 1-44 years. A stroke is suffered by about 800,000 people every year in the U.S. In Spain live about 420,000 persons with acquired cerebral damage and about 115,000 persons are affected by stroke every year.

Also, neurodegenerative diseases are of high incidence and finding treatments is a goal of increasing urgency. Today about 1M people in the U.S. suffer from Parkinson's disease; 400,000 from multiple sclerosis; 30,000 from ALS or Lou Gehrig's disease; and 30,000 from Huntington's disease. In Spain more than 80,000 people suffer from Parkinson's disease; 35,000 from multiple sclerosis; 4,000 from Huntington's disease; and 1,600 persons from ALS.

Taking into account all the other application areas of this innovation it is clear that the market is global and huge.

## IPR Position

Spanish Utility Model granted. Application number U201430605.

## Inventors

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## Opportunity

We are looking for a collaborator to create a spin-off or to license out the technology.

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