



System for assessing and treating the cervical spine

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Goal

The group is looking for investment and collaboration partners.

Patent

International patent application.
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Reference

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Introduction

Neck pain is recorded in 2,696 individuals, with an incidence of 579 cases per 100,000 people. Notably, approximately 50% of individuals who experience cervical pain will manifest a chronic condition, entailing concomitant challenges associated with neck discomfort.

In addition to the pain itself, individuals with neck pain usually have a restricted range of motion and reduced muscular strength. It has been observed that neck exercises can improve pain, range of motion, and neck strength in these patients. Furthermore, this type of treatment could be performed in subjects without neck pain for prevention.

It has been shown that the effectiveness of cervical exercises is based on adapting and personalising them to each patient. To achieve this, it is essential to have objective measurements of neck mobility and strength. These records provide a basis for prescribing and setting treatment goals, simultaneously allowing for continuous monitoring.

The devices that enable this collective assessment are quite bulky. Other types of devices allow for the evaluation of cervical movement or strength but in isolation. Our patent is a device that allows joint assessment of cervical movement and strength and can be adjusted for treatment purposes. In addition, the portable device has a compact size that facilitates transportation, allowing remote treatment.

Description

The compact device allows evaluation and treatment of the cervical spine. To do this, the back of the head is rested on the

device and the person is asked to perform a series of movements. The device allows these movements to be easily guided and performed. Through these movements, an assessment of the movement and strength of the neck is carried out. For treatment, the device has a system that allows you to adjust the movement and strength of the exercise.

The device has two flat surfaces joined by a rail, which allows the surfaces to move over each other. In addition, the system allows you to adjust the difficulty of moving between surfaces, adjusting the degree of friction. When neck movements and strength are assessed, the resistance between surfaces is of vital importance. Added to this, the evaluation system is sensorised, allowing the displacement and resistance between surfaces to be objectively determined. With all of this, the range of motion and strength of the neck can be established, thus allowing for test-retesting, objectively determining the progress of the subjects who use this system.

Advantages

The advantages of the system lie primarily in the fact that the same device enables both the assessment and treatment of the cervical spine. With a single device, it is possible to continuously measure the range of motion and strength of the neck, thus tracking the improvements achieved over time. Another significant advantage is that the system allows for the execution and adjustment of resistance during exercises. In this way, the device facilitates the performance of such exercises for both preventing neck pain and addressing it when already present.

Current stage of development

The "System for assessing and treating the cervical spine" is currently being tested for validation in the laboratory environment (TRL3).