

**Technology owner**

University Hospital Hradec Králové

Inventor (s)

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IPR status

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41967**Stage of Development**

Prototype testing in progress

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Many predominantly neurological or neuromuscular diseases are manifested by weakness of the extensor muscles of the neck, which is manifested by inappropriate kyphosis in the area of the cervical and thoracic spine (dropped head syndrome DHS). This is a source of significant discomfort for the patient and reduces his quality of life (problems with food intake with the risk of aspiration, dysphagic problems, impaired visual control, etc.).

One of the most common causes of these problems is amyotrophic lateral sclerosis (ALS) - a neurological disease that causes gradual degeneration of the cells that control muscle mobility. The patients gradually lose all movement on the body except of the eye movement ability. All this happens while maintaining mental abilities. The causes of the disease have not been sufficiently clarified yet. The disease can affect anyone, survival is stated between 3-5 years after diagnosis. The prevalence of the disease in the Czech Republic is estimated at 6-8 cases per 100,000 inhabitants. Other diseases that manifest themselves alike are for example Parkinson's disease, myasthenia gravis, various types of myopathies, scleromyositis, etc.

Description of the Invention

HKO is a solution to the problems associated with dropped head syndrome: it solves the fixation of the head in the required position for safe food intake (mild flexion, support and fixation of the head) and at the same time an upright position of the body (spine support). Anchoring the head in an upright position will reduce the risk of inhaling food or saliva and at the same time allow the user to secure the head upright during normal daily activities (reading or writing, working on a PC, watching television). The spectrum of its use is wherever it is necessary to support the position of the head - from neuromuscular diseases (ALS, Parkinson's disease, Myasthenia gravis), through swallowing disorders and conditions after oropharyngeal (ENT) procedures to the use of other areas, e.g. after CMP or in neurosurgery.

Advantages and Potential Applications

Various swallowing and rehabilitation aids are currently available to facilitate swallowing and help with treatment and rehabilitation, but these are only for patients with oral motor disorders (cups to facilitate fluid intake, spoons etc.). Existing positioning aids only solve the upright position. Expensive solutions in the form of chairs or wheelchairs providing comprehensive patient support are available for patients with motor disabilities, partially or completely immobile patients.

Our solution is easy to handle, easy to maintenance and with affordable price. The use of the device is expected in medical facilities, aftercare facilities and in the home environment.