

## Head & Neck Brace

### Development status

#### Phase 2

**Feasibility study.** There is a realistic design of the technology and the initial tests in the laboratory are leading to the specification of the technology requirements and its capabilities.

### IP protection status

European industrial design (EUIPO 8597157), Czech industrial design (č. 37908).

### Partnering strategy

*Collaboration, investment, licensing*



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### Institution



**Fakultní nemocnice Hradec Králové**

### Challenge

Some neurological disorders are manifested by weakness of the extensor muscles of the neck, which causes inadequate kyphosis in the area of the cervical and thoracic spine (dropped head syndrome DHS). This creates problems with food intake and the risk of aspiration and swallowing disorders and an overall reduction in quality of life. One of the common causes of these disorders are neurodegenerative disorders - amyotrophic lateral sclerosis (ALS). Patients experience gradual progressive muscle weakness, including respiratory muscles. All this happens while maintaining mental abilities. The incidence of ALS in the population worldwide is 1-2:100,000 and this is relatively uniform across nationalities. Only in the Czech Republic, a little more than 200 people are diagnosed with ALS each year. About 800 people with ALS are registered within the association Alsa, which brings together patients with ALS and their caregivers in the Czech Republic.

### Description

Head and neck brace - a device made of a combination of plastic and aluminum and textile cover, which on the principle of a splint attached and fixed to the head and torso maintains an upright position of the head and neck and stability of the spine. The system of attaching the brace to the body and head is secured with adjustable straps and velcro fastener. The upright position of the head reduces the risk of inhaling food and at the same time allows the user to perform normal daily activities. Our device is easy to handle, easy to maintenance and it offers the possibility of individual production, directly according to the user's instructions. The chin support collars used in practice stabilize the position of the head, but at the same time, they make it difficult to open the mouth and chew. The use of various positioning aids is also limited. Any other device that would ensure an upright position while maintain the ability to swallow and quality of life is not currently available on the market in the Czech Republic.

### Commercial opportunity

The aid is intended for acute and subsequent inpatient care facilities, rehabilitation institutions, social care institutions and in the home

environment. Our device is intended for acute and follow-up care facilities, rehabilitation institutions, social care institutions and home environment. Physiotherapists from the Alsa association participated in its development. The aid is fully paid from health insurance in the form of a custom made medical device.