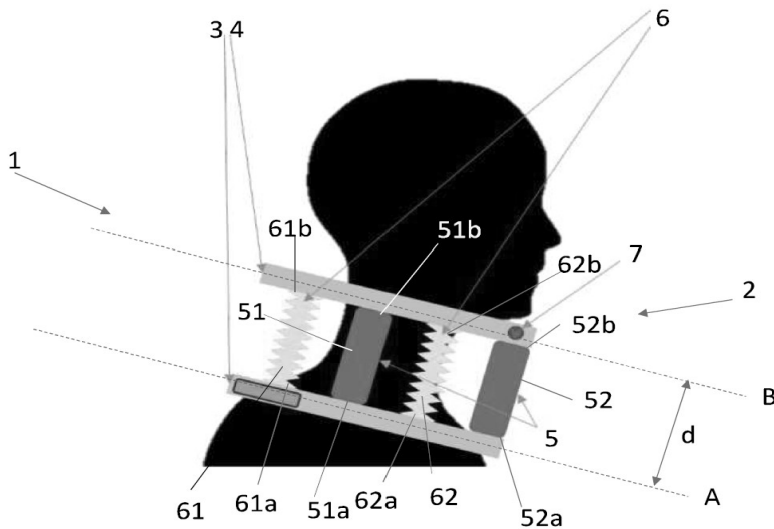


# Robotic system for cervical spine rehabilitation exercises



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## Description

The invention addresses the challenges in cervical spine rehabilitation by proposing a novel device that actively supports proper posture during exercises. Current devices often lack the capability to provide real-time, body-specific feedback or to guide and correct patient movements, leading to potential rehabilitation setbacks. The presented device uses structural and adaptive mechanisms to limit inappropriate movements while allowing beneficial ones. It directly measures body parameters through contact sensors and adjusts its configuration dynamically, ensuring movements are safe and rehabilitation-effective. The device integrates advanced features like machine learning for personalized adjustments and can operate independently or in conjunction with a smartphone or cloud platform.

## Advantages

Unlike prior solutions, the device provides real-time, direct feedback by measuring body parameters through physical contact, ensuring that corrections are precise and effective. Its structural adaptiveness actively guides and restricts patient movements, minimizing risks of harmful

exercises. The integration of machine learning allows personalized adjustments based on extensive patient data, enhancing rehabilitation outcomes. The device also supports connectivity to smartphones and cloud platforms, enabling remote monitoring and input from medical professionals, ensuring a tailored rehabilitation process. Its wearable, self-standing design ensures ease of use and patient comfort.

## Applications

- Rehabilitation of cervical spine disorders by guiding exercises and ensuring proper posture.
- Real-time monitoring of body parameters for accurate exercise adjustments.
- Collaboration with healthcare providers through remote data sharing and feedback.
- Personalized rehabilitation plans using machine learning to process patient-specific data.
- Extended applications for general neck muscle training or posture correction