

## Supervised, Tailored Exercise Programs Help Non-Surgical Chiari Patients

A small study from Turkey has shown that supervised exercise programs can have a significant positive impact on non-surgical Chiari patients. The research randomly assigned 16 adult patients – who were being treated conservatively – to one of two supervised exercise programs. The first program was tailored to Chiari symptoms and included a variety of activities focused on neck strength, balance, posture, oculomotor function and sensorimotor function. The second program was a standard routine of cervical spine stabilization exercises. The subjects in each group participated three times a week for one hour, for a total of six weeks. The same therapist supervised both groups.

To determine the effectiveness of the exercise programs, the participants were evaluated across a number of dimensions at both the start and end of the program. The primary assessment used was the Neck Disability Index (NDI). The NDI is a widely adopted 10 question survey which quantifies the impact of a person's neck pain on activities such as sleep, driving, reading, work and recreation. Additional assessments involved overall pain, cervical range of motion, balance, posture, gait and quality of life.

The NDI scores for both groups were significantly improved after the exercise programs. Specifically, the average score for the Chiari tailored group improved from 20.75 to 13.37. The average score for the cervical stabilization group improved from 21.62 to 13.37. Both improvements represent a change from a 'moderate' level of disability (as defined by the NDI) to a 'mild' level of disability. It is interesting to note that the difference in the improvement between the two groups was not statistically significant.

While scores for nearly all of the assessments improved for both groups, in the Chiari tailored group pain, neck extension and the physical and general health quality of life scores were significantly improved. For the other group, neck rotation, balance, head tilt and some quality of life measures were significantly improved. However, for all measures the difference in improvements between the two groups was not statistically significant. These somewhat confusing results could be because of the small number of participants in each group, and it is possible that repeating the study with much larger groups would clearly identify specific benefits of each exercise program. Or it is possible that further research would show that the main benefits to Chiari patients are derived from the neck focused exercises alone. Either way, additional research is required to both confirm these results and develop an evidence based protocol for non-surgical patients.

While this study clearly demonstrated an improvement in a number of measures after a six week exercise program, it is not clear if these gains are maintained over the long-term without continued, supervised training. It is also not clear what benefit, if any, surgical patients would experience from a similar program. It is encouraging to finally see some research in this area, but what the Chiari community really needs is for the physical therapy community to develop standard protocols for surgical and non-surgical patients.

**Source:** Effects of Two Exercise Regimes on Patients with Chiari Malformation Type 1: a Randomized Controlled Trial. Türkmen C, Köse N, Bal E, Bilgin S, Çetin H, Zengin HY, Gümeler E, Mut M. *Cerebellum*. 2022 Mar 24. doi: 10.1007/s12311-022-01397-1. Online ahead of print. PMID: 35325392

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