

## Surgery Improves Cognitive and Psychological Symptoms

One of Conquer Chiari's top research priorities has been to establish the cognitive and psychological effects of Chiari. For years these symptoms were dismissed, but Conquer Chiari sponsored studies have shown time and again that Chiari has a significant cognitive and psychological impact on patients. While there has been growing acceptance of this fact in the medical community, a recent publication in the Journal of Neurosurgery, not sponsored by Conquer Chiari, marks a new milestone in this regard.

Specifically, doctors and researchers at the University of Pittsburgh showed that decompression surgery improves both cognitive and psychological symptoms in adults. Over a five-year period, patients were offered an opportunity to participate by taking a full battery of neuropsychological tests both before and six months after decompression surgery. Cognitive tests evaluated executive function, attention, processing speed, verbal memory, visuospatial memory, and language. Psychological symptoms such as depression, anxiety, obsessive compulsive behavior, and hostility were evaluated using a self-report questionnaire.

Fifty-five patients participated in both testing sessions, but one participant was dropped from the study for technical reasons. The pre-test scores of the remaining 54 were compared to age, gender, and education matched normal scores and showed that on average the Chiari group had significant deficits in executive function and visuospatial memory. Psychologically, the Chiari group scored significantly higher across all the measured domains.

Post-surgically, the researchers found that 89% of the patients improved significantly either cognitively or psychologically, and 31% improved in both. Meanwhile, 65% significantly improved in at least one area psychologically. As a group, the scores for depression, anxiety, and hostility had returned to near normal after surgery.

It is important to note that this does not mean that all cognitive and psychological symptoms go away completely after surgery. However, it does establish, convincingly, that these types of symptoms seen in Chiari patients are in fact due to Chiari since they improve after surgery. It would be interesting to follow up this group with additional testing at the one and two year post-surgical marks to see if the improvements seen at six months are maintained.

**Source:** Henry LC, McDowell MM, Stephenson TL, et al. Predecompression and postdecompression cognitive and affective changes in Chiari malformation type I. J Neurosurg. Published online February 21, 2025.  
doi:10.3171/2024.8.JNS241363

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