Biofeedback – Proper brain function occurs when both sides of the brain communicate without interruption and work together. If the brain has a communication problem, major cognitive, motor, and social issues can occur. Agenesis of the corpus callosum (AgCC) is a congenital disorder in which the corpus callosum linking the two sides of the brain does not develop fully. As a result, incomplete brain function occurs in children, leaving them and their parents with very few treatment options. However, new research is beginning to show that biofeedback could be the answer.

The authors of an article published in the journal *Biofeedback* conducted a case study involving one 20-year-old male participant afflicted with AgCC. The authors applied a combination of LORETA neurofeedback and a biofeedback technique that specifically targeted controlling heart rate and breathing to help him cope with the disease. Their subject, called “B,” initially presented poor coordination and motor skills, difficulties with anxiety and socialization, and low academic progress.

Throughout the research study, B attended 40 sessions of treatment. His progress was evaluated at every 10th session and adjustments were made accordingly. During treatment, B practiced breathing techniques to help him reach a breath rate of approximately six breaths per minute, which was done to achieve synchronicity between breathing and heart rate. Once optimal breathing was attained, B moved into the LORETA neurofeedback segment. The neurofeedback sessions focused on training several areas of the brain relevant for his symptoms to fire more normally, and on training better cooperation among brain regions, in spite of the underdeveloped corpus callosum. Specific details on the changes accomplished in brain functioning are available in the published report.

After the 40 sessions, B made meaningful progress with regard to his motor skills, communication, social behaviors, academics, and sleep quality. He was able to move forward in high school level classes and is expected to graduate and pursue higher education. B also joined a social club, and was able to successfully try out for a sports team. In 20 years, this was the most successful course of treatment B had ever experienced.

The authors are very hopeful for what B's experience means, stating, "His mother noted that 'no other treatment ever led to significant improvement across such a wide range of symptoms in such a short period of time. LORETA neurofeedback led to improvement in B's motor coordination, visual spatial abilities, academics, attention, impulse control, and social interactions. B plans to continue LORETA neurofeedback training to further improve symptoms and prepare for post-secondary education. The results of utilizing LORETA neurofeedback in combination with HRV in this case of AgCC has resulted in unprecedented improvements. It represents a novel and promising intervention for this congenital problem."

Full text of the article, "LORETA Neurofeedback Combined with Biofeedback as a Treatment for Agenesis of the Corpus Callosum: A Single Case Study," *Biofeedback*, Vol. 44, No. 4, 2016, is available at http://www.aapb-biofeedback.com/doi/full/10.5298/1081-5937-44.4.04

About *Biofeedback*

Biofeedback is published four times per year and distributed by the Association for Applied Psychophysiology and Biofeedback. AAPB's mission is to advance the development, dissemination, and utilization of knowledge about applied psychophysiology and biofeedback to improve health and the quality of life through research, education, and practice. For more information about the Association, see www.aapb.org .