

Brain research reveals new hope for patients with anorexia nervosa

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Researchers from the Translational Developmental Neuroscience Lab led by Professor Stefan Ehrlich at the Department of Child and Adolescent Psychiatry and Psychotherapy of the University Hospital Carl Gustav Carus at the TU Dresden (Faculty of Medicine) used state-of-the-art magnetic resonance imaging (MRI) techniques to investigate the consequences of anorexia nervosa on brain structure. Their novel findings obtained by measuring "cortical thickness" for the first time in the eating disorder are now published in the renowned journal *Biological Psychiatry*. The authors conclude, "The global thinning of cortical gray matter observed in acutely ill adolescent patients can be completely reversed following successful weight rehabilitation therapy".

Previous studies of changes in [brain structure](#) associated with anorexia nervosa were limited in their ability to clarify important questions regarding the regional specificity and persistence of anomalies following therapy. In contrast, the analysis strategies employed by the Dresdener scientists in their large sample of both acutely ill and long-term recovered patients allowed for precise measurement of cortical gray matter on a sub-millimeter scale at over 100,000 locations across the entire surface of the brain. Prof. Stefan Ehrlich explained, "Not only the spatial expanse but also the magnitude of cortical gray matter thinning in acute anorexia nervosa is noteworthy – comparable to that typically observed in Alzheimer's disease."

Study participants underwent MRI scanning immediately following admission to specialized [eating disorder](#) clinics at the Dresdener University Hospital and following successful therapy with complete restoration of normal weight, eating behavior and menstruation. Roughly half of the patients that receive treatment successfully maintain these criteria – it is an extremely long road to long-term recovery for those afflicted with anorexia nervosa.

"We observed complete normalization of cortical [gray matter](#) thickness in the long-term weight rehabilitated patients in our sample", exclaimed Prof. Ehrlich, "which is a particularly encouraging finding for those suffering from the disorder." However, while this study shows that changes in brain structure can improve with therapy, [anorexia nervosa](#) may have other serious long-term consequences that are not reversible, such as reduction of bone mass due to osteoporosis.

More information: Joseph A. King, Daniel Geisler, Franziska Ritschel, Ilka Schober, Maria Seidel, Benjamin Roschinski, Laura Soltwedel, Johannes Zwipp, Gerit Pfuhl, PhD, Michael Marxen, PhD, Veit Roessner, MD, Stefan Ehrlich, MD: Global Cortical Thinning in Acute Anorexia Nervosa Normalizes Following Long-Term Weight Restoration; in: *Biological Psychiatry*, DOI: [dx.doi.org/10.1016/j.biopsych.2014.09.005](https://doi.org/10.1016/j.biopsych.2014.09.005)

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