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Bipolar disorder and Attention Deficit/Hyperactivity Disorder (ADHD) are two common neuropsychiatric disorders. The neurotransmitters dopamine, norepinephrine and serotonin are implicated in the pathophysiology of both disorders. The synthesis of these neurotransmitters is partly dependent on the brain’s availability of the precursor amino acids tyrosine and tryptophan. A disturbed transport of precursor amino acids to the brain could lead to dysfunctional neurotransmission. Altered transport of amino acids has previously been found in schizophrenia and autism, when using the fibroblast cell model.

The present thesis elucidates the transport of precursor amino acids in patients with bipolar disorder and children with ADHD, and relates the pre-synaptic activity (transport) with post-synaptic activity (receptors) in ADHD children, by use of the fibroblast cell model. The findings indicate that the amino acid transport is altered in these patients and that the density of muscarinic acetylcholine receptors may be altered in ADHD.