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Michael Reed* (reed@math.duke.edu), Department of Mathematics, 3000 Science Drive, Duke University, Durham, NC 27708, and **Janet Best** and **H Frederik Nijhout**. *Dopamine, Serotonin, and Diet*. Preliminary report.

We will describe mathematical models for the synthesis, release and reuptake of dopamine and serotonin in the neurons of specific brain regions. A model of transport of amino acids across the blood-brain barrier allows us to examine the influence of diet, both protein and carbohydrate, on the availability of dopamine and serotonin. Since both dopamine and serotonin influence a variety of behaviors, the model may permit us to make causal connections between diet and behavior in the the presence of certain neurodegenerative diseases or neuropsychiatric illnesses. (Received April 01, 2009)