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**M. Reed\*** ([reed@math.duke.edu](mailto:reed@math.duke.edu)), Department of Mathematics, Science Drive, Duke University, Durham, NC 27705, and **J. Best** and **H. F. Nijhout**. *Passive and Active Stabilization of Dopamine in the Striatum*.

Parkinson's disease is a neurodegenerative disorder associated with cell loss from the substantia nigra pars compacta (SNc). The dopaminergic cells of the SNc project to the striatum where the loss of dopaminergic tone is thought to be the main cause of Parkinsonism symptoms. Dopamine in the extracellular space in the striatum remains remarkably stable as SNc cells are lost, consistent with the observation that symptoms do not appear until cell loss is very advanced. A recent mathematical model of dopamine synthesis, release, and reuptake, constructed with J. Best and H. F. Nijhout, is used to investigate this phenomenon. (Received June 24, 2009)