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**Nakeya D Williams\*** (ndwilli5@ncsu.edu), Raleigh, NC 27695, and **Mette S Olufsen, Hien Tran** and **Jesper Mehlsen**. *An Optimal Control Approach for Modeling the Response to Head-Up Tilt*. Preliminary report.

Short term cardiovascular responses to head-up tilt (HUT) experiments involve complex cardiovascular regulation in order to maintain blood pressure at homeostatic levels. This poster presents an optimal control approach to modeling effects of cardiovascular regulation due to HUT on efferents including heart rate, cardiac contractility, vascular resistance, and vessel compliance. The model consists of a five-compartment lumped parameter model, a physiologically based sub-model that describes gravitational effects during HUT, and finally a cardiovascular regulation model that adjusts those efferents mentioned. (Received September 17, 2012)