

1086-VG-1812 **Megan E Sawyer***, mesawyer@ncsu.edu. *Compartmentalizing The Sunlight Vitamin: Using PBPK Modeling to explore Levels of Vitamin D and its Metabolites.*

Vitamin D sufficiency has far-reaching health implications in many different systems of the body. Yet, it is the second substance in the metabolism cascade that is actually beneficial. To become active, vitamin D must be metabolized first into 25(OH)D and then into the active form 1,25(OH)₂D. Levels of vitamin D and 1,25(OH)₂D are hard to accurately measure so predictions of vitamin D sufficiency are made through measuring the concentration of the most stable metabolite, 25(OH)D. This system of cascades yields itself well to analysis through physiologically based pharmacokinetic (PBPK) modeling. PBPK modeling is a compartmental-based technique that accounts for various physical and physiological properties of the substances and the subjects, and allows for testing of various exposure schemes *in silico*. In this talk, we will discuss the development and complexities of the PBPK model for the vitamin D cascade and several results. (Received September 24, 2012)