

STACEY MEADOWS, MICHELLE RUSSELL, THEUNIS VANAARDT and NATALIA OMELCHENKO, Department of Natural Sciences and Mathematics, West Liberty University, West Liberty, WV, 26074. Analysis of Nicotine Metabolisms in Chicken Development.

Studies indicate that 12.7% women are smoking during pregnancy, and a significant proportion of the United States population has been exposed to maternal smoking in utero. The early chick embryo is an established model of the first month of embryonic development in humans, including for nicotine effects. At the same time, it is likely that the drug pharmacokinetics in chickens has important distinctions from the one described in humans. Here we attempted to characterize the nicotine metabolism in chickens by measuring changes in nicotine concentrations maintained *in ovo* after a single nicotine dose. Nicotine (nicotine hydrogen bitartrate solutions) was injected in 24 eggs prior to incubation to match blood plasma levels observed in heavy smokers (30-50 ng/ml). After injections, eggs were sealed and incubated for 5 days. The eggs were harvested on day 5 after injections. Embryos were homogenized and sampled; corresponding yolk and albumin samples were also collected. The nicotine concentrations in all samples were measured using MEPS analysis. The important differences in nicotine metabolic pathways in chicks and humans are discussed.