

Warren J. Baker Endowment for Excellence in Project-Based Learning Robert D. Koob Endowment for Student Success

FINAL REPORT

I. **Project Title**

Randomized Intervention Trial to Decrease Bisphenol A Urine Concentrations in Women

II. **Student(s), Department(s), and Major(s)**

(1) Allie Smouse, Kinesiology dept

(2) Mikaela Streeter, Biology dept

(3)

III. **Faculty Advisor and Department**

Todd Hagobian, Kinesiology

IV. **Cooperating Industry, Agency, Non-Profit, or University Organization(s)**

None

V. **Executive Summary**

Bisphenol A (BPA) is associated with negative health consequences, but interventions to reduce BPA are lacking. To test the hypothesis that an intervention to reduce BPA would decrease urinary BPA concentrations over 3 weeks, twenty-four women (mean \pm SD; 22.1 \pm 2.8 kg/m², 20.9 \pm 1.5 yrs) were randomly assigned to an intervention or control. The intervention included weekly face-to-face meetings to reduce BPA exposures from food, cosmetics, and other packaged products. Women were provided with BPA-free cosmetics, hygiene, glass food/water containers and daily self-monitored major sources of BPA. Fasting urine BPA and creatinine concentrations, and weight were assessed at study entry and after 3-weeks. A significant ($P=0.04$) treatment x time interaction effect was observed on creatinine-adjusted BPA concentrations. From study entry to 3-weeks, women in the intervention decreased urinary BPA by 50% (mean \pm SE; -1.06 \pm 0.61 ng/mL) whereas women in the control increased urinary BPA by 62% (+0.85 \pm 0.57 ng/mL). A significant ($P=0.03$) treatment x time effect was also observed for weight changes. From study entry to 3-weeks, women in the intervention lost weight (-0.28 \pm 0.44 kg), whereas women in the control gained weight (+1.65 \pm 0.74 kg). A 3-week intervention decreased urinary BPA concentrations and improved weight status in women. Future studies are needed to examine intervention effects in overweight/obese individuals.

VI. Major Accomplishments

(1) 3-week BPA-free intervention targeting BPA exposures from food, personal hygiene products, cosmetics, and feminine hygiene products

(2) Urinary BPA concentrations and weight was assessed

(3) BPA-free intervention decreased urinary BPA concentrations by 50%, whereas control group increased urinary BPA concentrations by 62%

(4) BPA-free intervention lowered weight, whereas control gained weight
There was no relationship between change in BPA and change in weight

VII. Expenditure of Funds

Yes. Account should be closed.

VIII. Impacts to Student's Learning

Allie and Mikaela aided with all aspects of this, from concept to manuscript submission. They recruited subjects, were trained on the intervention, completed all assessments, and helped write the manuscript. We submitted the manuscript to the high-quality, peer-reviewed journal Environmental Research on October 1, 2015 and it is currently under review. See attached paper.