PRESS RELEASE

Study Reveals Decrease in Bisphenol A Exposure Can Impact Type 2 Diabetes Care

June 21, 2024 | Orlando, FL

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Data Indicates How Changes to Public Health Recommendation on BPA has Potential to Decrease Diabetes Risk

A new study reveals the benefits of reducing exposure to a common chemical for reducing the risk of diabetes. The findings are the first to provide evidence that BPA administration may increase type 2 diabetes risk and were presented as an Oral Presentation - Presidents' Select Abstract as well as a Symposium at the 84th Scientific Sessions of the American Diabetes Association® (ADA) in Orlando, FL.

Bisphenol A (BPA) is an industrial chemical used to make polycarbonate plastic and epoxy resins. Polycarbonate plastic is a hard, clear plastic used in many products, including baby bottles, food containers, pitchers, and tableware. BPA is an endocrine-disrupting chemical, which may increase the risk of type 2 diabetes. While BPA is linked to diabetes, no study has directly assessed if BPA administration increases this risk in adults.

“With the increase in diabetes in the US, it is our duty to ensure safety within our products and in our homes”, said Dr. Robert Gabbay, Chief Scientific and Medical Officer of the American Diabetes Association (ADA) and Associate Professor at Harvard Medical School. “This is only the beginning of highlighting the need for informed public health recommendations and policies.”

In a double-blind study, participants were given either a placebo or BPA at the US EPA's safe dose (50 ug/kg body weight) for 4 days to assess its effect on insulin sensitivity. Forty healthy, non-active adults (22 F, 18 M; average age 21.3; average BMI 22.1; 85% Non-Hispanic White) completed a 2-day low-BPA diet, during which urine, blood, and peripheral insulin sensitivity were measured using a 120-minute euglycemic hyperinsulinemic clamp. Participants were then randomly assigned to a 4-day diet with either oral BPA (50 µg/kg) or a placebo, in a double-blind manner. Outcomes were reassessed using repeated measures ANOVA, adjusting for sex, BMI, physical activity, and ethnicity.

This study suggests that bisphenol A in food packaging may directly impact diabetes risk in adults, informing public health recommendations and policies. Results showed that BPA administration decreased peripheral insulin sensitivity after four days. From baseline to 4-days, body weight was not significantly different between placebo group (PL) mean ± SEM; 66.7 ± 2.5, 66.2 ± 2.5 kg) and BPA-50 (66.7 ± 2.5, 66.7± 2.5 kg). From baseline to 4-days, fasting blood glucose was not significantly different between PL (95 ± 2, 88 ± 2 mg/dL) and BPA-50 (92 ± 2, 92 ± 2 mg/dL). Compared to PL urine BPA was statistically significantly higher following BPA-50. From baseline to 4-days, peripheral insulin sensitivity significantly (P=0.01) decreased in BPA-50 (0.11 ± 0.01, 0.10 ± 0.01 mg/kg/min/uU/ml) and remained stable in PL (0.09 ± 0.01, 0.10 ± 0.01 mg/kg/min/uU/ml).

“Given that diabetes is a leading cause of death in the US, it is crucial to understand even the smallest factors that contribute to the disease”, said Todd Hagobian, PhD, author of study. “We were surprised to see that reducing BPA exposure, such as using stainless steel or glass bottles and BPA-free cans, may lower diabetes risk. These results suggest that maybe the US EPA safe dose

should be reconsidered and that healthcare providers could suggest these changes to patients."

As this study progresses, two follow up studies are needed to accurately account for results. The first being to see if a lower dose of bisphenol A administration over several weeks or months increases diabetes risk, and the second to see if aerobic exercise, which is a powerful stimulator of decreasing diabetes risk, can reverse or overcome the negative effects of bisphenol A administration.

Research presentation details:

Dr. Hagobian will present the findings at the following Oral Presentation - Presidents' Select Abstract

- Oral Bisphenol A Administration Decreased Peripheral Insulin Sensitivity in Healthy Adults
- Session: Friday, June 21, 2024 from 12:45 – 1:00 PM EDT

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About the ADA's Scientific Sessions

The ADA's 84th Scientific Sessions, the world's largest scientific meeting focused on diabetes research, prevention, and care, will be held in Orlando, FL on June 21-24. More than 11,000 leading physicians, scientists, and health care professionals from around the world are expected to convene both in person and virtually to unveil cutting-edge research, treatment recommendations, and advances toward a cure for diabetes. Attendees will receive exclusive access to thousands of original research presentations and take part in provocative and engaging exchanges with leading diabetes experts. Join the Scientific Sessions conversation on social media using #ADAScientificSessions.

About the American Diabetes Association

The American Diabetes Association (ADA) is the nation's leading voluntary health organization fighting to bend the curve on the diabetes epidemic and help people living with diabetes thrive. For 83 years, the ADA has driven discovery and research to treat, manage, and prevent diabetes while working relentlessly for a cure. Through advocacy, program development, and education we aim to improve the quality of life for the over 136 million Americans living with diabetes or prediabetes. Diabetes has brought us together. What we do next will make us Connected for Life®. To learn more or to get involved, visit us at diabetes.org or call 1-800-DIABETES (1-800-342-2383). Join the fight with us on Facebook (American Diabetes Association), Spanish Facebook (Asociación Americana de la Diabetes), LinkedIn (American Diabetes Association), Twitter (@AmDiabetesAssn), and Instagram (@AmDiabetesAssn).

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