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The Effects of Non-Nutritive Sweeteners on the Health of Youth in United States

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Strand IV HEALTH: MENTAL & PHYSICAL HEALTH

1. TITLE:

The Effects of Non-Nutritive Sweeteners on the Health of Youth in United States

2. RELEVANCE:

Obesity has been a growing epidemic in the United States. As the consumption of fast food, sodas, and sweets has increased, so has the weight gain in the adolescents of our growing society. Overweight children can develop health issues that can lead into chronic diseases detrimental to their health later in life.

3. BRIEF DESCRIPTION:

Obesity results from a multitude of problems from depression, an imbalance in hormones, genetics, environmental factors, and can also result from a poor diet, where we are focusing our attention. A strong correlation is made with low income and obesity in children. In 2014, 14.5% of patients ages 2-4 were obese. From 2011 to 2014 17% of adolescents experienced obesity and this affects around 12.7 million people. Statistics have shown that as the age increases in adolescents, so does the prevalence of obesity.

4. SUMMARY:

The health of Americans has decreased in recent years; chronic diseases like diabetes, hypertension, and weight control in young children especially have become more frequent. Our research considers nonnutritive sweeteners and exposing the truth about them. The goal of this project is to look at recent studies, to reveal the side effects of nonnutritive sweeteners.

Over indulgence of sweetened food is a common, unhealthy epidemic today for young children. To avoid caloric overload, food companies have introduced zero calorie sweeteners to the food and beverage industries. The five most widely used nonnutritive sweeteners in America are aspartame, acesulfame-k, neotame, saccharin, and sucralose. When nonnutritive sweeteners are consumed in mass amounts the body is vulnerable to toxins, tissue depletion, along with other severe side effects. Eating a healthy balanced diet with little to no nonnutritive sugars will lower the chances of many health-related issues in adolescents.

Recent research has shown that the overconsumption of nonnutritive sweeteners has harmful effects on the body. A study in mice has shown that liver brain depletion occurs when aspartame is overconsumed. Another study conducted on mice, involving long term use of acesulfame-k, altered gut microbiome. The functional genes associated with that microbiota were altered as a result. There are numerous studies directed towards nonnutritive sweeteners and the long-term effects of the foods and beverages that include them.

5. EVIDENCE:

Non-nutritive sweeteners may be the underlying cause of obesity in adolescents. A study involving mice showed that the weight gain was gender dependent. The weight gain was prominent in male mice rather than female mice, due to the disturbed gut microbiome. Even though the female mice experienced no weight gain the gut was disturbed by the consumption of acesulfame-k. The good bacteria in the gut decreased while the harmful bacterial population increased in the female rats. In another study on seven participants, saccharin caused glucose levels to spike. A microbiota transplant was performed on rodents showed increased glucose levels. Studies have not only shown damage to our internal organs and overall health but recent research has shown that nonnutritive sweeteners can damage functional genes associated with pathways in our body systems. The effects of non-nutritive sweeteners can lead into serious health issues and consumers should pay close attention to the products they consume, how much they consume, and how these additives affect the body.

6. FORMAT:

The format of the presentation will be a poster presentation, featuring visual aids and handouts.

7. BIOGRAPHICAL SKETCH: -

Ashley Passantino is a senior Pre-Vet major at Georgia Southern University with minors in Nutrition and Chemistry. She is involved in biological research which involves dealing with parasites on a molecular level. Her future plans are to go to veterinarian school.

Michael Hinson is a senior at Georgia Southern University majoring in Exercise Science with a minor in nutrition. He is involved in research that involves concussions and measured physiological adaptations in women's college soccer players. His plans for the future include PA School.

Dr. Padmini Shankar is a Professor of Nutrition and Food Science at Georgia Southern University. She achieved her Ph. D. from the Texas Tech University and is a registered dietitian.

8. CONTACT INFORMATION:

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