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Saccharin induces alterations in sugar homeostasis as assessed with an animal model of menopause

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Obesity is currently considered a pandemic, worldwide, and finding ways to reduce its incidence has become a paramount objective of health-policies in many countries. Limiting the number of ingested calories is a strategy that has shown beneficial to reduce the prevalence of obesity. With this in mind, the use of artificial sweeteners is often advised in order to reduce the amount of ingested calories. Other studies would, however, pose caution on the use of artificial sweeteners, which would have been shown to be able to induce glucose intolerance, one of the landmarks of obesity and diabetes, in animal models and humans. Indeed, artificial sweeteners would, themselves, have been proposed as main contributors to the spread of obesity worldwide. But still, research is needed to clarify the role played by these compounds in the obesity problem. In menopausal women, obesity has been found to be an important risk factor for the development of postmenopausal breast cancer, and replacing caloric beverages with diet beverages, usually, artificially sweetened, continues to be a mainstream strategy in weight control in adult and peri-menopausal women. Unfortunately, to date, little is known about the effects of artificial sweeteners on weight gain or metabolic control in menopausal women. For this reason, we decided to assess the possible impact of the common artificial sweetener, saccharin, in an animal model of menopause, namely, the ovariectomized mouse. To this end, we selected 12 female ovariectomized C57BL/6 mice and assessed their metabolic control with a glucose tolerance test. Then, they were offered a 0.1% saccharin in water solution at their home cages for 16 days, after what, the glucose tolerance test was repeated. We found significant differences ($p<0.005$ and $p<0.05$) in basal glucose levels of the animals, after the 16 hour fasting preceding the glucose tolerance test posterior to the 16d saccharin treatment and these differences lasted for at least 45 days. Further studies should explore the importance of the observed alterations in the development of obesity and its possible role in human postmenopausal health.

Biography

Francisco Alen is from the group of Neuropharmacology of Motivated Behavior which is a credited Research Group of the Complutense University of Madrid, with 20 years' experience and more than 50 papers in international journals in different lines of research, including the role of the cannabinoid system in metabolic homeostasis and the development of new medications for obesity.

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