

Title: The Effect of Long-Term High-Dose Coconut Oil Supplementation on Rat Glucose Homeostasis

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Abstract

We investigated the effect of long-term high-dose virgin coconut oil (VCO) supplementation on rat glucose homeostasis. Animals were divided into two groups with 6 of them in each: normally fed (Control group) and the group fed with coconut oil at a concentration of 20% in food (VCO group). The experiment lasted for four months. We measured fasting glycemia once a week during the entire experiment. In the last week of the experiment, we performed an oral glucose tolerance test (OGTT) and an intraperitoneal insulin tolerance test (ITT). On the last day of the experiment the fasting insulin and glycemia were measured in the blood of animals. The results show that coconut oil reduces weekly glycemia in VCO animals compared with controls. This effect reaches its maximum after the first two weeks of the experiment, and then slowly decreases and disappears over time of next eight weeks. As a result, the glycemia of control and VCO animals do not differ in last six weeks of the experiment. The area under the curve (AUC) presenting glycemia during whole the experiment is significantly lower in VCO animals than in the controls. The hypoglycemic effect of coconut oil is obviously dose-dependent since the amount of food (and therefore the coconut oil) that the animals eat decreases over the time. The results of the oral glucose tolerance test show that the OGTT AUC of VCO animals is significantly lower than the controls, and same is true for the insulin tolerance test. Finally, glycemia and insulin concentration in serums sampled on the last day of the experiment do not differ between VCO and Control groups, so accordingly neither HOMA-IR 1 and 2 (Homeostatic model assessment of insulin resistance) nor QUICKI (Quantitative Insulin Sensitivity Check Index). In conclusion, our results show beneficial effects of long-term high-dose coconut oil supplementation on rat glucose homeostasis.

Biography

Dr. Sinisa Djurasevic (Ph.D. in Biology) is an associate professor at the Faculty of Biology University of Belgrade. He got his B.Sc., M.Sc., and Ph.D. in the field of animal physiology. He is the author of 30 bibliographic records in research areas of Nutrition, Stress, and Oxidative stress and antioxidative protection. He is a Member of the Serbian Higher Education Reform Experts team and Serbian Ethical Council for the use of laboratory animals. Currently, Dr. Sinisa Djurasevic works in the area of functional food (coconut oil and C60 fullerene).

Note:

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