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Reduced neurogenesis in the rat hippocampus following high fructose consumption.

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Abstract

In this study, we investigated how prolonged consumption of sugar solution affects hippocampal neurogenesis. We gave rats sucrose or fructose solution for four weeks and observed a 40% reduction in BrdU/NeuN-immunoreactive cells in the hippocampal dentate gyrus. This reduction in hippocampal neurogenesis was accompanied by increased apoptosis in the hippocampus and increased circulating levels of TNF- α . Therefore, we hypothesize that the reduction in hippocampal neurogenesis may be due to increased apoptosis induced by TNF- α . Our results suggest that chronic ingestion of fructose is detrimental to the survival of newborn hippocampal neurones. The results presented in the present study add to the list of harmful effects associated with prolonged and excessive consumption of sugary beverages and soft drinks.

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