

Alternative fuel for your brain

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Tight control of blood glucose levels is critical to mitigating the long-term complications of diabetes; however, the intensive insulin therapy required for this control is frequently accompanied by recurrent episodes of low blood sugar (hypoglycemia). Hypoglycemic episodes have been implicated in brain damage and cognitive impairment. Though the brain depends predominantly on glucose as an energy source, it can also use alternative fuels, such as lactate, to satisfy its energy requirements.

In this issue of the *Journal of Clinical Investigation*, Raimund Herzog and colleagues at Yale University used [magnetic resonance spectroscopy](#) (MRS) to measure the concentrations and enrichment of different energy substrates and their metabolites in a rat model of recurrent hypoglycemia. They found that recurrent hypoglycemia enhances neuronal uptake of lactate which allows the brain to retain normal neural activity during hypoglycemia.

These observations suggest that lactate supports neuronal function and indicate that supplementation of alternative fuels could protect the brain during hypoglycemia.

More information: Lactate preserves neuronal metabolism and function following antecedent recurrent hypoglycemia, *J Clin Invest.* [doi:10.1172/JCI65105](https://doi.org/10.1172/JCI65105)

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