

A meta-analysis of blood glucose effects on human decision making

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Abstract

The academic and public interest in blood glucose has been increasing over the last decade and a prominent view suggests that higher levels of glucose function as brain fuel, enhancing self-control and cognition. To test this claim, we conducted a psychometric meta-analysis on the effect of blood glucose on decision making. We identified 42 studies relating to four dimensions of decision making: willingness to pay, willingness to work, time discounting, and decision style. In contrast to prevailing views, we do not find a uniform influence of blood glucose on decision making. Instead, we find that low levels of blood glucose increase the willingness to pay and willingness to work when a situation is food related, but decrease willingness to pay and work in all other situations. Low levels of blood glucose increase the future discount rate for food, i.e. decision makers become more impatient, and, to a lesser extent, increase the future discount rate for money. Low levels of blood glucose also increase the tendency to make more intuitive rather than deliberate decisions. However, this effect was only observed in situations unrelated to food. We conclude that blood glucose has domain-specific effects, influencing decision making differently depending on the relevance of the situation to acquiring food.

Keywords: meta-analysis, blood glucose, decision making, ego depletion, dual-systems theory, optimal foraging