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Ketosis and appetite-mediating nutrients and hormones after weight loss.

Sumithran P[1], Prendergast LA, Delbridge E, Purcell K, Shulkes A, Kriketos A, Proietto J.

Author information

Abstract

BACKGROUND/OBJECTIVES: Diet-induced **weight loss** is accompanied by compensatory changes, which increase appetite and encourage **weight** regain. There is some evidence that ketogenic diets suppress appetite. The objective is to examine the effect of ketosis on a number of circulating factors involved in appetite regulation, following diet-induced **weight loss**.

SUBJECTS/METHODS: Of 50 non-diabetic overweight or obese subjects who began the study, 39 completed an 8-week ketogenic very-low-energy diet (VLED), followed by 2 weeks of reintroduction of foods. Following **weight loss**, circulating concentrations of glucose, insulin, non-esterified fatty acids (NEFA), β-hydroxybutyrate (BHB), leptin, gastrointestinal hormones and subjective ratings of appetite were compared when subjects were ketotic, and after refeeding.

RESULTS: During the ketogenic VLED, subjects lost 13% of initial **weight** and fasting BHB increased from (mean±s.e.m.) 0.07±0.00 to 0.48±0.07 mmol/l ($P<0.001$). BHB fell to 0.19±0.03 mmol/l after 2 weeks of refeeding ($P<0.001$ compared with week 8). When participants were ketotic, the **weight loss** induced increase in ghrelin was suppressed. Glucose and NEFA were higher, and amylin, leptin and subjective ratings of appetite were lower at week 8 than after refeeding.

CONCLUSIONS: The circulating concentrations of several hormones and nutrients which influence appetite were altered after **weight loss** induced by a ketogenic diet, compared with after refeeding. The increase in circulating ghrelin and subjective appetite which accompany dietary **weight** reduction were mitigated when **weight**-reduced participants were ketotic.

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