

## An Exogenous Ketone Ester Modulates Appetite but Not Dietary Intake

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**Objectives:** Previous research suggests exogenous ketone esters (KE) suppress appetite by directly modulating regulatory hormones; however, their impact upon eating behaviors is unknown. The authors aimed to determine if the diminished appetite resulting from KE consumption is accompanied by a reduction in dietary intake.

**Methods:** After informed consent participants ( $n = 7$ ) were recruited to a randomized cross-over trial. Participants recorded their diet for three consecutive days, starting the day prior to their first study appointment. During this visit, fasted participants were randomized to consume either a KE or matched dextrose placebo (DP) beverage. Blood samples were drawn at regular intervals and analyzed for  $\beta$ -hydroxybutyrate (BHB), glucose, leptin and ghrelin. Appetite was self-reported using a visual analogue scale (VAS). One-week later participants were invited to a second visit where the study was repeated using the other beverage. Dietary data was analyzed using MyFood24 and statistical analysis was performed using Microsoft Excel and IBM SPSS (v.26).

**Results:** BHB increased 30 minutes after consuming the KE ( $0.21 \pm 0.20$  to  $4.21 \pm 0.66$  mmol/L) ( $P < 0.001$ ) and remained elevated. Blood glucose increased 30 minutes after consuming the DP ( $4.87 \pm 0.42$  to  $8.11 \pm 1.41$  mmol/L) ( $P < 0.001$ ) and promptly returned to baseline. Although there were no changes in leptin levels, those who consumed the KE demonstrated suppressed ghrelin production 120 minutes after baseline ( $2430.00 \pm 323.46$  to  $1763.14 \pm 367.67$  pg/mL) ( $P = 0.026$ ). Furthermore, the VAS also revealed that 120 minutes after baseline participants who consumed the DP reported a greater desire to eat ( $+26.86 \pm 23.55$  mm) ( $P = 0.038$ ) and were less satisfied ( $-30.43 \pm 12.52$  mm) ( $P = 0.003$ ). Despite this, there was no significant differences in the calorie intake of those who consumed the KE compared to the DP on the day before ( $1941.06 \pm 1048.13$  vs  $1792.86 \pm 833.23$  kcal), during ( $1594.64 \pm 677.07$  vs  $1536.52 \pm 457.22$  kcal) or after ( $1674.41 \pm 801.43$  vs  $1914.35 \pm 804.78$  kcal) the study visits.

**Conclusions:** Consuming a KE, despite impacting upon self-reported measures of appetite and associated biomarkers, does not modulate dietary intake. This should be considered when assessing the potential role of KE for appetite management.

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