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Very low carbohydrate diets for weight loss and cardiovascular risk[1]

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Background - It is not clear to what extent high saturated fat very low carbohydrate (VLCARB) diets for weight loss affect cardiovascular (CVD) risk.
Objective - To compare a VLCARB diet isicalorically to 2 conventional weight loss strategies on a spectrum of cardiovascular risk factors after energy balance was re-established.
Design - Sixty seven subjects aged 48±8y, total cholesterol 5.9±1.0mmol/L, and BMI 33±3kg/m^2 were randomly allocated to one of 3 isocaloric weight loss dietary interventions which were energy restricted for 8 weeks (6MJ) and in energy balance for 4. The diets were Very Low Fat (VLF) (10% fat, 3% saturated fat), High Unsaturated Fat (HUF) (30% fat, 6% saturated fat) and Very Low Carbohydrate (VLCARB) (61% fat, 20% saturated; 4% carbohydrate).
Outcomes - VLCARB resulted in 9.2% weight loss compared to VLF (7.3%) and HUF (7.0%) (P=0.034). DEXA data revealed no difference in percent total fat loss between diets. Lean mass loss was higher on VLCARB and VLF (31-32% of weight loss) compared to HUF (21%) (P<0.05). LDL-C increased 0.18±0.18mmol/L on VLCARB but decreased 0.40±0.11mmol/L on VLF and 0.34±0.14mmol/L on HUF (P=0.009). VLCARB had the greatest triglyceride reduction (-0.73±0.12mmol/L) followed by HUF (-0.15±0.07mmol/L) and VLF (-0.06±0.13mmol/L) (P<0.001). HDL-C increased only on VLCARB (+0.06±0.03mmol/L). Plasma homocysteine increased 6.6% on VLCARB, decreased 6.8% on VLF and remained unchanged on HUF (P=0.026 for diet effect). VLCARB lowered fasting insulin by 33% compared to a 19% fall on HUF and no change on VLF (P<0.001). All diets resulted in significant decreases in fasting glucose, blood pressure and CRP with weight loss (P<0.05).
Conclusion - Under isocaloric conditions VLCARB results in substantial improvements but also some deterioration in cardiovascular risk factors compared to conventional weight loss patterns.
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Acute effect of dietary proteins on appetite, energy intake and glycemic response in overweight men

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Background – Dietary protein is thought to be the most satiating macronutrient. It is unclear if protein type affects appetite and energy intake.
Objective – To investigate the role of whey and casein proteins, relative to high and low glycemic index carbohydrates (glucose and lactose, respectively) in appetite, energy intake and glycemic response.
Design – Eighteen overweight men (53.4 ± 1.5 y, BMI 32.2 ± 0.9kg/m^2) with impaired glucose tolerance (6.3 ± 0.1mmol/L) consumed a liquid "breakfast" preload (~1 MJ, 50 g of whey protein isolate, calcium caseinate, lactose or glucose) and ate an *ad libitum* "buffet lunch" three hours later. Preloads were administered in a single blind, randomised order and separated by a seven day interval. Energy intake, visual analogue scale (VAS) ratings of appetite and post prandial glucose and insulin were measured 0, 15, 30, 45, 60, 90, 120 and 180 minutes after commencing the preload.
Outcomes – There was a trend for lower ad libitum energy intake at lunch after the whey preload (4070 kJ ± 293, casein 4343 ± 301 kJ, glucose 4678 ± 260, lactose 4122 ± 234, P=0.06). VAS ratings of satiety, hunger, emptiness and desire to eat were not different between treatments (assessed by area under the curve, AUC, 0 – 180 min). Post prandial glucose AUC was significantly lower after the whey and casein preloads compared to the carbohydrate based preloads (P=0.026), although post prandial insulin AUC was similar.
Conclusions- Acute, *ad libitum* energy intake and subjective ratings of appetite are not affected by consumption of whey and casein liquid preloads. Similarly, energy intake and appetite are not influenced by protein or carbohydrate based preloads, despite different post-prandial glucose responses.
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