

## Effects of High Protein Diet A meta analysis

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Page 1: Baker IDI



## CSIRO Data

- 6 randomised controlled trials pooled.
- 287 participants: 187 HP, 107 LP at 12 months
- Total group -6.7 vs -3.8 kg
- Total Fat -5kg vs -2.8kg
- Peripheral fat -2.3kg vs 0.9 kg
- 12 month abdominal fat: 8.6 vs 9.2
- 12 month peripheral lean: 21.9 vs 21.4 kg
- TG -0.37 vs -0.16 mmol/L

Page 2: Baker IDI



## Fat/lean mass

- Krieger meta analysis (2006) 87 intervention studies looking at diet composition-only 7 >12 weeks.
- < or =35-41.4% carbohydrate were associated with a 1.74 kg greater loss of body mass, a 0.69 kg greater loss of fat-free mass, a 1.29% greater loss in percentage body fat, and a 2.05 kg greater loss of fat mass than were diets with a higher percentage of energy from carbohydrate.
- In studies that were conducted for >12 wk, these differences increased to 6.56 kg, 1.74 kg, 3.55%, and 5.57 kg, respectively.
- Protein intakes of >1.05 g/kg were associated with 0.60 kg additional fat-free mass retention compared with diets with protein intakes < or =1.05 g/kg.
- In studies conducted for >12 wk, this difference increased to 1.21 kg.

Page 3: Baker IDI



## Meta analysis (Atkins)

- Nordmann 2006: 5 trials, 447 individuals
- 6 months, individuals assigned to low-carbohydrate diets had lost more weight than individuals randomized to low-fat diets (weighted mean difference, -3.3 kg; 95% confidence interval [CI], -5.3 to -1.4 kg).
- Gone at 12 months (weighted mean difference, -1.0 kg; 95% CI, -3.5 to 1.5 kg).
- There were no differences in blood pressure.
- Triglyceride and HDLC values changed more favorably in individuals assigned to low-carbohydrate diets: TG weighted mean difference, -0.25 mmol/L; (95% CI, 0.43 to -0.06 mmol/L; and for HDL 0.12 mmol/L (0.04-0.21 mmol/L)

Page 4: Baker IDI



## Meta analysis

- Total cholesterol and low-density lipoprotein cholesterol values changed more favorably in individuals assigned to low-fat diets (weighted mean difference in low-density lipoprotein cholesterol after 6 months, 0.14 mmol/L; 95% CI, 0.03-0.26 mmol/L).

Page 5: Baker IDI

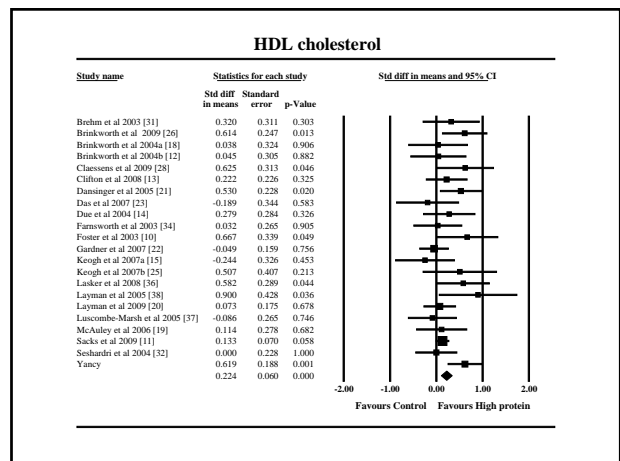
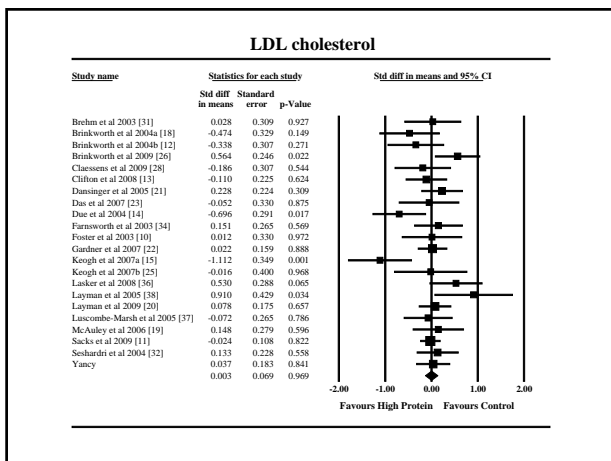
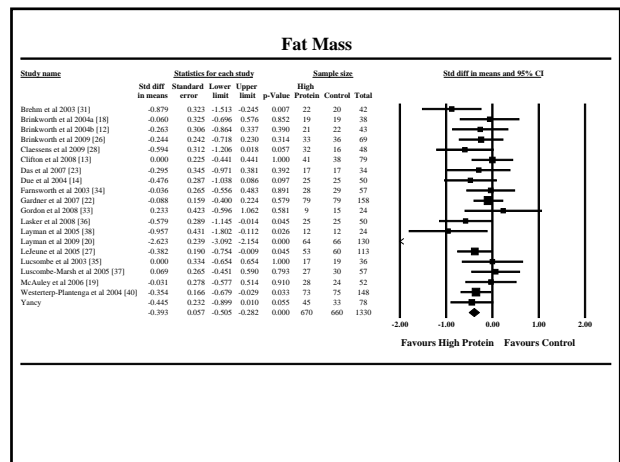
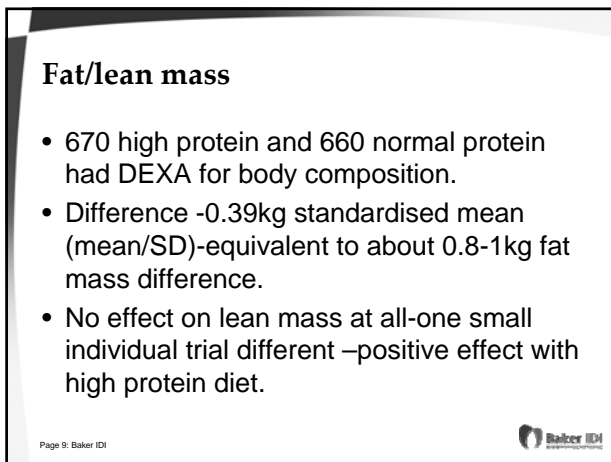
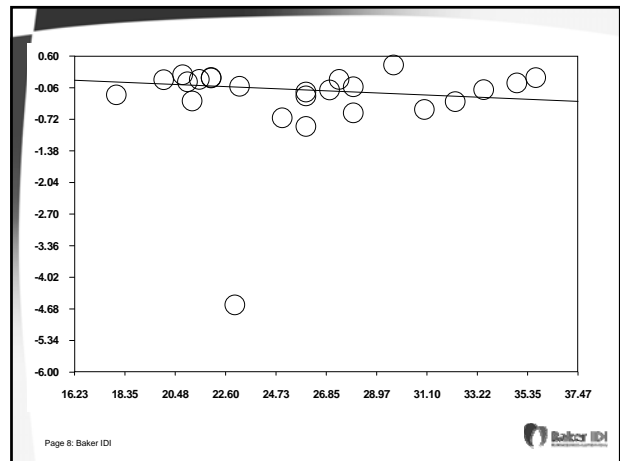
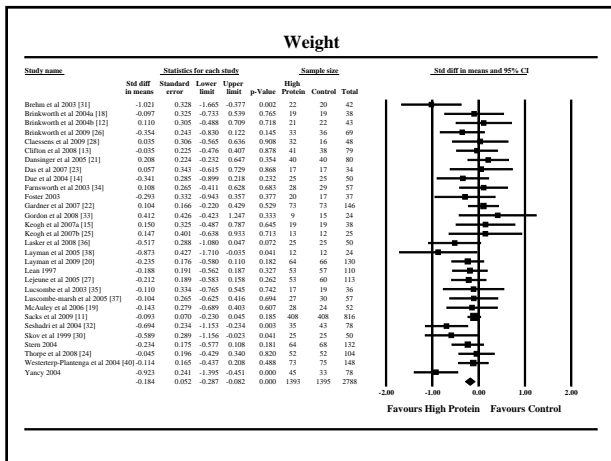


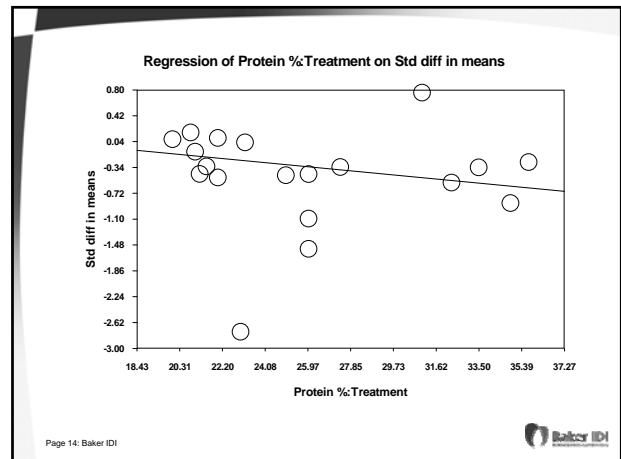
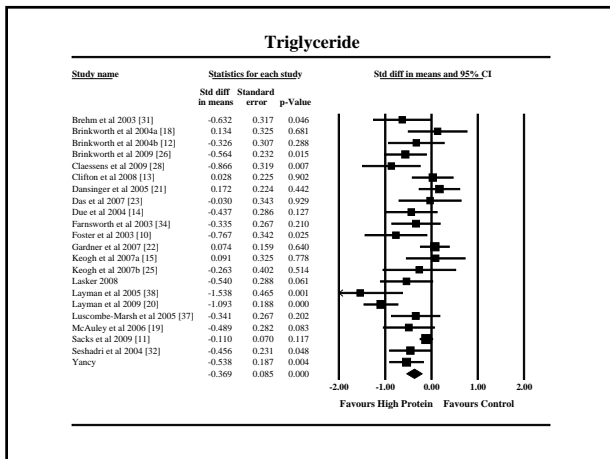
## Meta analysis

- High protein diets vs normal protein diets
- At least 10% protein difference planned or expected (eg Atkins diets) and on diets for 4-24 months. 3 months or less excluded
- Actual difference more usually 2-5% at the end of study
- 1393 high protein, 1395 normal protein
- 30 studies, 5 significant effect of protein

Page 6: Baker IDI







## Modifiers

- If Atkins diets (very low CHO and high fat) removed both changes in HDL and TG still significant, although smaller.
- Moderate CHO restriction has lipid effects.
- Systolic Blood pressure –no effects.  
Diastolic Blood pressure-minor effects.
- Insulin and glucose no effects.

Page 15: Baker IDI

## Conclusions

- Despite very poor compliance to the diets a recommendation to eat more protein has modest effects on body fat and lipids.
- Efforts to improve compliance required.

Page 16: Baker IDI