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IS WEIGHT LOSS INDEPENDENT OF THE ENERGY INTAKE WE PRESCRIBE?

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A number of reports have reached the surprising conclusion that there is no significant difference in BMI reduction, body composition, acceptance and mood between groups of overweight persons who have been prescribed widely different energy intakes, e.g. 400, 600 or 800 kcal/day. This implies the hypothesis that compliance is the same, and that the effect of a difference in energy intake is in some way counterbalanced by corresponding differences between groups of some unknown factor. It is very difficult to throw light on this matter by means of prospective studies, as blinding is impossible, and because instruction and surveillance is likely to be influenced by investigator's bias.

We have retrospectively analyzed 6 of our clinical studies dealing with a total of 270 overweight persons. The prescribed energy intake varied between 388 and 1,648 kcal/day, but the instruction, frequency of control and key personnel was the same in all studies.

RESULTS. In our studies there is a significant correlation between the level of the prescribed energy intake and weight loss. We conclude that other authors' finding of uniform weight losses is explained mainly by the fact that overweight persons in general will reduce their energy intake only to a certain, rather uniform degree, no matter what calorie restriction is demanded of them. We have obtained significantly better weight loss after 4 weeks on 388 kcal/day than the above mentioned authors found on 420 kcal/day. We take this to mean that with adequate instruction and frequent control motivation can be encouraged and compliance ameliorated.

This confirmation of what should be obvious, physiologically and psychologically, is important: Many overweight persons are in need of a substantial and speedy weight loss, e.g. those with serious metabolic and/or orthopedic complications, or young persons with high and psycho-socially disabling degrees of obesity.

It would therefore be wrong to abandon the use of 400 kcal/day VLCDs. They are more effective than 600-800 kcal/day programs, and there is a need for them.

DIFFERENCES IN CHEWING TIME BETWEEN OVERWEIGHT AND NON-OVERWEIGHT INDIVIDUALS AND THE EFFECT ON APPETITE.

Wilfred H Turnbull, Sarah L. Evans, Department of Dietetics and Nutrition, Queen Margaret College, Clerwood Terrace, EDINBURGH EH12 8TS, Scotland.

This study investigated whether there were differences in chewing time between non-overweight and overweight individuals and if this affected appetite variables. Ten normal weight and seven overweight, healthy, female volunteers participated in the study. The two groups of subjects were given the same set meal at lunch-time after fasting overnight, were filmed through a two-way mirror and timed so that bites, chews and chews per bite could be recorded. Subjects were not aware that they were being filmed.

The overweight group chewed significantly less times during the meal than the normal weight group. Chewing was significantly correlated with BMI - the larger the BMI the less chews occurred per meal. An increased rate of chewing significantly decreased appetite variables. There were no significant associations between increased chewing and decreased energy intake. It is highly likely that there was an under reporting of appetite variables and dietary intake in the overweight subjects.

Chewing may play a role in obesity, possibly by affecting appetite.

SHORT-TERM EFFECTS OF MACRONUTRIENT PRELOADS ON APPETITE AND ENERGY INTAKE IN LEAN AND OBESE WOMEN. Sally D. Poppitt, Deirdre McCormack, Andrew M. Prentice, Rochelle Buffenstein. Dunn Clinical Nutrition Centre, Addenbrooke's Hospital, Cambridge, UK.

This study investigated the relative satiating hierarchy of the 4 energy providing macronutrients in lean and obese women. On 4 separate occasions the composition of an isoenergetic lunch preload was manipulated in 12 lean (BMI < 25 kg/m²) and 11 obese women (BMI > 30 kg/m²). The 4 treatments comprised a 1MJ baseline meal and drink (40% fat, 48% CHO, 12% protein) to which was covertly added i) +1MJ CHO; ii) +1MJ fat, iii) +1MJ protein, iv) +1MJ alcohol. Prior to and at 30 minute intervals subjects completed 100mm visual analogue scales rating subjective hunger. 90 minutes following the preload an *ad libitum* lunch meal was given (40% fat, 48% CHO and 12% protein) and energy intake (EI) measured.

| Preload Treatment | Lunch intake (kJ, \pm sd) | |
|-------------------|-----------------------------|-------------|
| | Lean | Obese |
| Baseline +1MJ CHO | 2502 (681) | 2858 (1065) |
| +1MJ Fat | 2558 (1050) | 2424 (1323) |
| +1MJ Protein | 2195 (880) | 1858 (753) |
| +1MJ Alcohol | 2772 (1191) | 2551 (1067) |

There was no difference between the pleasantness of the preloads ($P > 0.05$). Macronutrient composition had a significant effect on short-term hunger in both lean ($F = 3.19$, $P < 0.05$) and obese women ($F = 3.55$, $P < 0.05$), subjects being less hungry after the protein preload. Subjects also had a lower EI after the protein preload in both groups (Lean: $F = 3.11$, $P < 0.05$; Obese: $F = 3.79$, $P < 0.05$). There was no significant difference in EI across treatments between the 2 groups ($P > 0.05$). We conclude that only protein has a differential short-term satiating effect when incorporated into the diet at such low energy levels, the subsequent reduction in EI being common to both lean and obese individuals.

EFFECTS OF MODIFIED FASTING ON THE LEVEL OF HDL-CHOLESTEROL SUBFRACTIONS

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It is well known that body weight (BW) reduction affects the level of certain lipid fractions. However, a number of previous studies showing contradictory results indicated that completely sporadic follow-up of HDL-cholesterol (CHOL) level has been occurred.

In a group of 30 extremely obese women, average age 38,01 \pm 6,76 years, a treatment by modified fasting (1260 kJ energy intake a day) was carried out. At the beginning of treatment and 30 days later, the values of BW were 101,5 \pm 17,5 kg and 92,1 \pm 16,1 kg ($p < 0,05$) respectively. Plasma triglycerides decreased to 1,12 \pm 0,26 mmol/l ($p < 0,001$), plasma CHOL decreased from 6,07 \pm 1,34 to 4,42 \pm 0,84 mmol/l ($p < 0,001$). The changes of LDL-CHOL were also statistically significant ($p < 0,001$). Total HDL-CHOL was 1,12 \pm 0,26 at the beginning of the treatment, but significantly decrease of that value was noticed one month later 0,92 \pm 0,21 mmol/l ($p < 0,01$). The decrease of HDL-CHOL level has been influenced by reduction of HDL3-CHOL level (from 0,99 \pm 0,29 mmol/l to 0,77 \pm 0,19 mmol/l, $p < 0,01$), while the level of HDL2-subfraction has not been changed (0,24 \pm 0,12 before the treatment and 0,20 \pm 0,08 mmol/l after the treatment, $p > 0,05$).

Our results suggest that weight reduction such as modified fasting does not seem to be the factor with unfavorable effect on the HDL-CHOL level. Decreasing of HDL-CHOL level has been occurred due to HDL3 while the protective HDL2 subfraction was unchanged.