EDITOR'S NOTE

International Journal of Obesity (2005) 29, 1392. doi:10.1038/sj.ijo.0803059

In the exchange of letters to the Editor below, an important point has been made regarding reporting of patents to the *Int J Obes* at the time of submission of a manuscript. As Dr Zemel notes, patent applications are a matter of public record. However, in order for readers to be able easily to draw their own conclusions about potential biases, the IJO policy is for authors to declare any potential conflicts of interest, including patents, and these will be noted in a footnote to the paper. The Editor confirmed Dr Zemel's patents and patent applications and requested of him that in any future submissions to IJO, their presence be noted. Academicians

are being asked by their universities to pay more attention to intellectual property, and a much higher percentage of authors will have potential conflicts of interest than in the past. All authors are encouraged to be aware of the IJO policies and to inquire at the time of submission if they have any questions about what to declare as a potential conflict of interest.

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LETTER TO EDITOR

Calcium and weight loss

International Journal of Obesity (2005) 29, 1392–1393. doi:10.1038/sj.ijo.0803057

Zemel *et al*¹ assert that dairy augmentation of a calorie-restricted diet in obese adults ($n=34$) results in weight and fat loss greater than an isocaloric diet. One group included foods (Yoplait Light™ yogurt) to bolster the calcium intake to 1100 mg/day while the control group ingested a diet with less calcium (400–500 mg/day). In examining the paper, a few points appear to warrant further attention. There appear to be no compliance measurements for actual calcium intake in either the Yoplait Light or control group (gelatin dessert). Thus, there is the possibility that a confounding variable (compliance) may have affected the results. Table 2 indicates that the Yoplait Light group was prescribed a diet of 1437 ± 190 kcal/day while the Control group was asked to eat 1303 ± 190 kcal/day. Since this study enrolled obese adults ($\text{BMI} > 30 \text{ kg/m}^2$), one would expect a high noncompliance with such a low caloric instruction. Both groups had a mean BMI of about 32 kg/m^2 , which means a person who is 172.72 cm and weighs 95.45 kg would be asked to eat 14 kcal/kg. Eating such a hypocaloric amount should produce greater weight loss than was reported for either the Control or Yoplait Light group (-0.91 kg/week , -1.45 kg/week ,

respectively). These data call compliance into question. In addition, the authors did not provide compliance data regarding actual macronutrient intake vs prescribed ($\sim 49\%$ carbohydrates, $\sim 16\%$ protein and $\sim 35\%$ fat). Did they control for this variable? Furthermore, there are no data provided regarding actual calcium intake vs the study prescription, raising the question that the weight loss observed may have been due to some factor other than calcium intake. If neither of the confounding variables of macronutrient ratio and actual calcium intake were assessed, the results may need reassessment.

In an upcoming publication, Bowen *et al*² found that a hypocaloric high dairy protein diet that contained 2400 mg of Ca/day caused weight loss, but the weight loss effects were not related to the Ca intake. Thus, it appears that the protein portion and the diet being hypocaloric are more important for weight loss than calcium alone.

Finally, it is disheartening that Dr Zemel did not reveal in this paper that he has one United States Patent granted for calcium as a weight loss agent (see 'Materials and methods for the treatment of obesity') and eight more pending United

States Patent Applications.^{3–11} All of these patents and patent pending ‘inventions’ are for calcium as a weight loss/fat loss aid either through food or dietary supplements in addition to a plan for how to promote calcium consumption for weight loss. While obtaining patents or applying for patents is not wrong, the lack of disclosure of the possible conflict of interest should be reported to the readers. Given the concerns expressed above, it may be premature to accept the theory of calcium as a weight modifier.

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References

- 1 Zemel MB, Richards J, Mathis S, Milstead A, Gebhardt L, Silva E. Dairy augmentation of total and central fat loss in obese subjects. *Int J Obes Relat Metab Disord* 2005; **29**: 391–397.
- 2 Bowen J, Noakes M, Clifton PM. Effect of calcium and dairy foods in high protein, energy restricted diets on weight loss and metabolic parameters in overweight adults. *Int J Obes Relat Metab Disord* 2005. doi:10.1038/sj.ijo.0802895.
- 3 United States Patent 6,384,087.
- 4 United States Patent Application 20020192264.
- 5 United States Patent Application 20020132014.
- 6 United States Patent Application 20040197424.
- 7 United States Patent Application 20040197423.
- 8 United States Patent Application 20040197385.
- 9 United States Patent Application 20040197383.
- 10 United States Patent Application 20040197425.
- 11 United States Patent Application 20040197382.

RESPONSE

Dairy augmentation of weight and fat loss

International Journal of Obesity (2005) **29**, 1393–1394. doi:10.1038/sj.ijo.0803058

In his letter, Kalman¹ has raised some interesting points in response to our recent publication of yogurt augmenting total and central fat loss secondary to energy. However, the concern regarding compliance as a confounding variable appears to be unfounded. As indicated in the article, ‘all subjects maintained complete diet diaries, and compliance was assessed by weekly subject interview and review of the diet diary and product return (analogous to pill counts)’. To expand upon this, subjects were judged to be compliant only if their diet diaries indicated they maintained a total calcium intake of ≤ 600 mg/day exclusive of the yogurt or gelatin desert, consumed 80–100% of the product provided (based on product return) and maintained an energy intake within 200 kcal of the daily energy prescription. Using these criteria, 13 of the 18 subjects on the yogurt diet and 10 of the 16 subjects on the control diet met all criteria for compliance. Separate analysis of the compliant subjects yielded comparable data to that found in the analysis of all subjects completing the trial, although the statistical significance achieved was stronger in the compliant group.

With regard to the macronutrient, calcium and energy intakes achieved, this data is indeed provided in this paper and summarized in Table 2. However, to reiterate this data, subjects in both groups achieved a diet that contained 30% of energy from fat, 18% from protein and 52% from carbohydrate. The actual calcium intakes achieved (also shown in Table 2) were 495 ± 28 mg/day for the control group and 1077 ± 22 mg/day for the yogurt group, and the

actual energy intake achieved was 1303 and 1437 kcal/day for the control and yogurt groups, respectively. Thus, the targeted calcium intakes were achieved, and the study was not confounded by an altered macronutrient pattern.

The upcoming publication of Bowen *et al*² appears to stand in contrast with our findings. However, that work utilized a much higher level of protein intake (34 energy %/protein vs 18% in our study) making a direct comparison difficult, as higher protein intakes have been shown in some studies to be associated with greater weight loss. Indeed, the weight loss found in the Bowen study was approximately twice that found in the control group in our study (-9.7 vs -4.99 kg). At this higher rate of weight loss, the ability of a high calcium or high dairy diet to elicit additional increments of fat mobilization may be limited. Further, the baseline calcium intakes in the Bowen study were considerably higher (899 and 787 mg/day for men and women, respectively, assigned to the dairy protein diet, and 935 and 737 mg/day for those assigned to the mixed protein diet) than in our clinical trials,^{1,3} in which we have recruited subjects with prestudy calcium intakes of < 600 mg/day to ensure that we were studying the effects of correcting suboptimal intakes rather than supplementing adequate intakes. This issue of studying individuals whose baseline intake is significantly below optimal levels may be especially important during short-term trials.

Finally, Mr Kalman is correct regarding my patents. Protection of the intellectual property produced by our