Letters to the Editor

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References


Reply to letter by Abraira and Lawrence

Dear Sir:

We cannot agree with the statement of Abraira and Lawrence suggesting that eating “lentils at breakfast significantly impeded facilitated glucose disposal at lunch.” After lentils at breakfast the blood glucose response to our standard bread and cottage cheese lunch was only 80 mmol/l while on the other hand after a bread and cottage cheese breakfast the standard lunch was significantly higher at 130 mmol/l (p < 0.01). We agree that we may be taken to task for calling this the Staub-Traugott effect; however, in fairness we did not refer to it as “the true” but rather as “a new aspect of . . .”, nor do we now wish to cloud the main issue of the metabolic effects of “lente” or slow release carbohydrate with semantics.

We interpret our results as indicating that slow absorption of carbohydrate from the gastrointestinal tract after one meal may facilitate the disposal of glucose absorbed from a subsequent meal. We developed this concept of lente carbohydrate in relation to our studies of dietary fiber and diabetes over the past decade (1). The studies of Anderson and Ward (2) have demonstrated that with high carbohydrate high fiber diets a progressive reduction in insulin requirement was noted. Our own studies with the purified fiber guar showed similar results (1). In addition, guar was found to delay carbohydrate absorption and this led us to an experimental scenario similar to the one under discussion but using guar and glucose (3). Here we found that giving guar with a glucose load at breakfast resulted in a flattened blood glucose response at lunch and that to some extent this could be mimicked by sipping the breakfast glucose load at an even rate over the 4 h before lunch (3). What we have attempted to show here is that a similar effect can be achieved with foods known in vitro to release their products of digestion slowly (lentils) or more rapidly (bread) (4).

Albraira and Lawrence mention their own studies which we were remiss not to quote and wisely caution that the effects of what we would prefer to call lente or slow release carbohydrate must be tested in diabetics.

We include, therefore, results of a study of a 50-yr-old diabetic physician (100% DW) controlled on diet alone who on two separate days after an overnight fast took 240 g of glucose in 2.4 l lemon flavored water over a 12-h period. On one day the glucose solution was taken in three divided doses (80 g glucose each) and on the other day the glucose was taken by continuous sipping ensuring the intake of 5 g glucose every 15 min. As can be seen in Figure 1 on continuous sipping by comparison with three “meals” the blood glucose response was markedly flattened, as was
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FIG. 1. Blood glucose, insulin, and respiratory quotient (RQ) response and 2-h urinary glucose loss, measured over 12 h, are shown in a diabetic controlled on diet. On one occasion 80 g glucose drinks were taken at 0, 4, and 8 h and on another 5 g glucose in solution was taken every 15 min by continuous sipping.

The insulin response. The insulin area was lower by 25%. The urinary glucose loss was reduced by 89% from 6.4 to 0.7 g. In addition, the respiratory quotient, measured on expired air collected over 10 min in Douglas bags and analyzed in a Lloyd-Haldane gas analyzer, showed a progressive rise with no oscillations.

We believe this is the sort of evidence which Abraira and Lawrence believe is required and supports their suggestion that the slow bread breakfast may improve glycemic excursions. We could extend their interpretation of such evidence to indicate, in the context of this discussion, that slow release or lente carbohydrate, whatever the form, may benefit diabetic control.

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