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LETTER

Co-ordinating meals and exercise for diabetes management

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To the Editor: In their recent article in *Diabetologia* [1], Jakubowicz and colleagues compared two meal plans: a high-energy breakfast and small supper vs a small breakfast and high-energy supper in type 2 diabetic patients. The results indicated reduced postprandial hyperglycaemia throughout the day with the meal plan featuring the high-energy breakfast. Kahleova and colleagues also reported that eating two meals a day, breakfast and lunch, is a better plan than eating six meals a day [2]. This is consistent with the finding that missing breakfast is associated with an increased risk of type 2 diabetes and worsening metabolic measures [3]. (The omission of breakfast means prolonging counter-regulation, and eating breakfast means switching to insulin action.) Taken together, these results can be seen as indicating that early switching of the hormone system from counter-regulation to insulin action and decreasing NEFA (and the resulting second-meal phenomenon) are important for diabetic patients [1]. A sensible meal plan for diabetic patients could involve distributing the total daily energy content among a big balanced breakfast, moderate lunch and a small supper. Such a meal plan offers favourable hormone levels, improved glucose profile and minimal hypoglycaemia risk [1, 2].

This moderate glucose profile can be further improved by timely post-meal exercise after the major meal—breakfast in this case. It has been known for more than three decades that a bout of light to moderate aerobic activity for up to 60 min, starting 30 min after the first bite of a meal, can blunt the post-meal glucose peak [4, 5]. This is because the bulk of the meal-derived glucose is used up by the activity when glucose and insulin levels are high and counter-regulation is suppressed. Exercise before breakfast is known to increase glucose levels via endogenous glucose production [6]. There is also evidence that adding a short bout of resistance exercise before the aerobic activity, two or three times a week, improves physical fitness, body composition and HbA_{1c} [7].

A balanced breakfast followed by timely post-meal exercise could be a wise way to start the day for type 2 diabetic patients. Indications are that type 1 patients also could benefit from timely post-meal exercise after the main meal of the day [4]. Co-ordinating meals and exercise as described here would not violate current diabetes guidelines [8]. Long-term studies of the effect of such a lifestyle on HbA_{1c} and lipids would be useful.

Duality of interest The author declares that there is no duality of interest associated with this manuscript.

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