

A case in point: Fruit intake and diabetes – an area of ongoing debate

The author group was divided about whether fruit intake should be promoted for the prevention and management of T2D, reflecting a wider ongoing debate among scientists and clinicians.

Two sides of the debate

- **For fruit:** fruits should be promoted as they have low energy density, are high in vitamins, minerals, phytochemicals and dietary fibre, and are included in the 5-a-day health message.
- **Against fruit:** fruits should be limited as their higher carbohydrate content raises blood glucose levels requiring higher doses of antidiabetic medication, and many of their benefits can be obtained from other sources such as vegetables. Fruit juices and smoothies, widely believed to count as healthy, increase energy intake and are inimical to overall weight control

What do current evidence-based guidelines recommend, and what is the evidence?

General population guidelines

- There are widespread public health messages to consume at least 5 portions of vegetables and fruit a day (more specifically, 3 of vegetables, and 2 of fruit within which fruit juice with no added sugar is allowed as one portion). In some countries this message promotes at least 7 portions a day (4 vegetable and 3 fruit portions). Variety of intake is promoted.
- Named dietary patterns that are generally considered healthful, include emphasising fruit and vegetables intake – such as in the Mediterranean diet, DASH diet, and others.

Guidelines for the management of diabetes

- Many national guidelines include consuming fruits as part of general healthy eating pattern, reasoning that fructose from fruit may result in better glycaemic control compared with isocaloric intake of sucrose or starch. Some do not mention fruit specifically, focusing instead on green leafy vegetables.
- Some guidelines recommend consuming fruit with lower glycaemic index, including apples, pears, oranges, peaches, plums, apricots, and berries while avoiding fruit with higher glycaemic index (such as some tropical fruits like mango, cantaloupe, watermelon, pineapple).

Prospective evidence for the prevention of T2D

There is mixed evidence. Some meta-analyses did not find an association of total fruit intake with new-onset T2D.¹ Some large prospective studies suggest that greater variety, not quantity, of fruit intake is associated with lower incidence of new-onset T2D, while others suggest that inverse, null or positive associations with new-onset T2D exist with different individual types of fruits, but that the reasons and mechanisms for this were not yet fully clear.^{2,3} A critical review of the evidence across different health endpoints provided support for national programmes that promote vegetable and fruit intake, but highlighted that specifically for the prevention of T2D the evidence was more mixed, though potential beneficial effects on T2D prevention through a favourable influence on weight cannot be ruled out.⁴

Conclusion

For people with existing T2D, there is some evidence for potential benefits of fruits with lower glycaemic index, and fructose from fruit is likely to be better than isocaloric intake of sucrose or starch, particularly as refined carbohydrates, but there is need for further research. Currently, the consumption of fruits should be guided within the overall dietary pattern of an individual, their taste and other preferences and by their glycaemic control and need for antidiabetic medication, supported by healthcare professionals.

References:

- (1) Carter P, et al. Fruit and vegetable intake and incidence of type 2 diabetes mellitus: systematic review and meta-analysis. *BMJ* 2010;341:c4229.
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- (3) Muraki I, et al. Fruit consumption and risk of type 2 diabetes: results from three prospective longitudinal cohort studies. *BMJ* 2013;347:f5001.
- (4) Boeing H, et al. Critical review: vegetables and fruit in the prevention of chronic diseases. *European journal of nutrition* 2012;51(6):637-63.