

Summary

Position Statement on the Non-Nutritive Sweeteners Aspartame, Acesulfame K and Stevia

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EXECUTIVE SUMMARY

In 2010, the CCSP Health and Wellness Advisory Council prepared the 'Position Statement on the Non-Nutritive Sweeteners Aspartame, Acesulfame K and Stevia' which considered the safety and efficacy of these non-nutritive sweeteners. The position paper has now been updated following a review of published literature from June 2010. Key findings are as follows:

Safety

The non-nutritive sweeteners aspartame, acesulfame K and stevia have undergone extensive safety assessments by food regulatory authorities and are considered safe for use as general purpose, non-nutritive sweeteners in the general population.

In a comprehensive re-evaluation of the safety of aspartame conducted by the European Food Safety Authority in 2013, no issues of concern to the general population were identified and no changes were recommended to the Acceptable Daily Intake. In particular, EFSA ruled out a potential risk of aspartame causing damage to genes and inducing cancer based on an extensive review of both animal and human studies, and also concluded that aspartame does not harm the brain, the nervous system or affect behaviour or cognitive function in children or adults.

People with phenylketonuria (PKU) are advised to avoid products sweetened with aspartame. Products that are sweetened with acesulfame K and stevia, and are free of aspartame, can be safely consumed by people with PKU.

The available evidence does not support the hypothesis that aspartame-derived aspartic acid may lead to impairment of neurological function. Aspartame-derived methanol is very unlikely to pose any risk to health at intakes at or below the Acceptable Daily Intake for aspartame. The margin for safety is high.

Acesulfame K does not induce any effects of toxicological significance, even at very high intakes, nor does it have mutagenic or carcinogenic potential. There is no evidence that stevia is carcinogenic in animals or humans.

Body weight, appetite and sweet taste preference

The evidence on whether non-nutritive sweeteners affect appetite or preference for sweet foods is very limited and no firm conclusions can be drawn.

Recent randomised controlled trials indicate that the replacement of sugar-sweetened beverages with drinks containing non-nutritive sweeteners appears to be a useful adjunctive strategy for weight management, although no definitive long-term trials have been reported.



Diabetes and cardiometabolic risk

Aspartame, acesulfame K and stevia have no adverse effects on blood glucose or insulin levels and products containing these non-nutritive sweeteners may be safely included in the diets of people with diabetes. These sweeteners may be useful adjuncts to other weight control measures in people with diabetes. However, some caution derives from studies suggesting associations with type 2 diabetes and cardiovascular events, possibly reflecting other dietary and lifestyle confounders.



Dental health

Limited evidence suggests that the replacement of sugar-sweetened beverages with drinks sweetened with non-nutritive sweeteners may lower risk for dental caries. However, the acidity of some low-joule beverages confers risk for dental erosion.



EVIDENCE-BASED MESSAGES



- The non-nutritive sweeteners aspartame, acesulfame K and stevia have undergone extensive safety assessments by food regulatory authorities and are considered safe for use as general purpose, non-nutritive sweeteners in the general population.



- Individuals with phenylketonuria should avoid products sweetened with aspartame. Products that are sweetened with acesulfame K and stevia, and are free of aspartame, can be safely consumed by people with phenylketonuria. No other group at risk from non-nutritive sweeteners has been identified.



- In Australia and New Zealand, intakes of non-nutritive sweeteners are low and well within Acceptable Daily Intakes, even among high consumers. Consumption is generally higher among middle-aged adults and lower among older and younger age groups.



- The consumption of beverages containing non-nutritive sweeteners has been associated with weight gain in some prospective cohort studies, giving rise to suggestions that these sweeteners may dysregulate appetite, promote a preference for sweet foods and contribute to obesity. However, reverse causality is a possible explanation in some cohort study findings.



- The evidence on whether non-nutritive sweeteners affect appetite or preference for sweet foods is very limited and no firm conclusions can be drawn.



- The replacement of sugar-sweetened beverages with drinks containing non-nutritive sweeteners is a useful adjunctive strategy for weight management.



- Aspartame, acesulfame K and stevia have no effect on blood glucose or insulin levels and products containing these non-nutritive sweeteners may be safely included in the diets of people with diabetes. These sweeteners may be useful adjuncts to other weight control measures in people with diabetes.



- The effects of non-nutritive sweeteners on cardiometabolic risk are unclear. Although associations between the consumption of non-nutritive sweeteners and the risk for type 2 diabetes, the metabolic syndrome, hypertension, stroke and coronary heart disease have been observed in several prospective cohort studies, potential mechanisms are lacking and reverse causality or confounding is a possible explanation.



- Limited evidence suggests that the replacement of sugar-sweetened beverages with drinks sweetened with non-nutritive sweeteners may lower risk for dental caries. However, the acidity of some low-joule beverages confers risk for dental caries.