



SUCRALOSE – SCIENCE & TECHNOLOGY

News: *A recent study from India has highlighted the potential benefits of using sucralose, a non-nutritive sweetener, as a substitute for sucrose (table sugar) among individuals with Type 2 Diabetes.*

- The study contrasts with the WHO's recent caution against Non-Nutritive Sweeteners (NNS) for weight control in non-diabetics.

What's in the news?

- The study reported no significant changes in glucose or HbA1c levels, a key indicator of blood glucose control, between the intervention and control groups.
- Participants using sucralose showed slight improvements in body weight, waist circumference, and Body Mass Index (BMI).
- The judicious use of sucralose can help in reducing overall calorie and sugar intake, which is crucial for managing diabetes effectively.
- Significance: These findings are significant for India, where sweeteners are less commonly used. The study suggests that sucralose could improve dietary compliance and aid in weight management for diabetics in the country.

What are Sugar and Sugar Substitutes?

- Sugar: It is a form of carbohydrate, along with fibre and starch. While carbohydrates are important for our health, sugar itself is not essential.
 - White table sugar, known as sucrose, is the most widely used sweetener.
 - Other natural sugars include: fructose, galactose, glucose, lactose, maltose.
- Sugar Substitutes:
 - Sugar substitutes offer a sweet taste without the calories associated with sugar, with some containing no calories at all.
 - They are commonly found in products labelled as "sugar-free", "keto", "low carb" or "diet".
 - Types of Sugar Substitutes:
 - Artificial Sweeteners: Also known as Non-Nutritive Sweeteners (NNS), are primarily synthesised from chemicals in laboratories, or derived from natural herbs. They can be 200 to 700 times sweeter than table sugar.
 - Examples: Acesulfame potassium (Ace-K), Advantame, Aspartame, Neotame, Saccharin, Sucralose etc.
 - Sugar Alcohols: They are synthetically derived from sugars, and are used in many processed foods. They are less sweet than artificial sweeteners and add texture and taste to items like chewing gum and hard candies.
 - Examples: Erythritol, isomalt, lactitol, maltitol, sorbitol, and xylitol etc.
 - Novel Sweeteners: They are derived from natural sources, offer the benefits of both artificial and natural sweeteners. They are low in calories and



sugar, preventing weight gain and blood sugar spikes, and are typically less processed, closely resembling their natural sources.

- Example: Allulose, Monk fruit, Stevia, Tagatose etc.

DIABETES

- About:
 - Diabetes or Diabetes Mellitus (DM) is a medical disorder characterised by insufficient insulin production or an abnormal response to insulin, leading to elevated blood sugar (glucose) levels.
 - While 70–110 mg/dL fasting blood glucose is considered normal, blood glucose levels between 100 and 125 mg/dL is considered prediabetes, and 126 mg/dL or higher is defined as diabetes.
- Initiatives to Tackle Diabetes:
 - National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS).
 - World Diabetes Day
 - Global Diabetes Compact

TYPES OF DIABETES		
	Type 1 Diabetes	Type 2 Diabetes
Causes	In this, the pancreas does not make insulin , because the body's immune system attacks the islet cells in the pancreas that make insulin.	In this, the pancreas makes less insulin and the body becomes resistant to insulin
Prevalence	Type 1 diabetes affects about 5-10% of people with diabetes, typically developing before age 30 , though it can occur later in life.	Type 2 diabetes is more common but typically begins after age 30 and increases with age
Prevention	Cannot be prevented.	Can be prevented with lifestyle changes.



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Source: [https://www.thehindu.com/sci-tech/health/judicious-use-of-sucralose-as-sugar-substitute-has-benefits-for-diabetics-says-study/article68492489.ece#:~:text=A%20recent%20study%20from%20India,body%20mass%20index%20\(BMI\)](https://www.thehindu.com/sci-tech/health/judicious-use-of-sucralose-as-sugar-substitute-has-benefits-for-diabetics-says-study/article68492489.ece#:~:text=A%20recent%20study%20from%20India,body%20mass%20index%20(BMI))



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