



Ultra-Processed and Fast Foods Making India Diabetic

For Prelims: [Ultra-Processed Foods](#), [Diabetic Capital](#), [Oxidative Stress](#), [Insulin](#), Advanced Glycation End Products, [Food Processing](#), [Sweeteners](#), [Saturated Fat](#), [Food Safety and Standards Authority of India \(FSSAI\)](#), [High in Fat, Sugar, and Salt \(HFSS\) Foods](#), [Saksham Anganwadi](#), [Poshan 2.0](#).

For Mains: Impact of ultra-processed foods (UPFs) on public health, Measures to promote healthier dietary practices.

[Source: TH](#)

Why in News?

Recently, a study published in the *International Journal of Food Sciences and Nutrition* highlights the role of **advanced glycation end products (AGEs)** found in [ultra-processed](#) and **fast foods** in India's increasing diabetes cases.

- The clinical trial was the first of its kind in India and was funded by the **Department of Biotechnology** under the **Ministry of Science and Technology**.

What are the Key Highlights of the Study?

- **Role of AGEs:** The high intake of **AGE-rich foods** is a major factor behind India's status as the "[diabetic capital](#)" of the world, with over **101 million people** affected.
 - AGEs are **harmful compounds** formed through **glycation**, a process where **sugars react with proteins or fats** during high-temperature cooking, like frying or roasting.
 - AGEs contribute to [oxidative stress](#), which is an imbalance between **free radicals** and [antioxidants](#), leading to inflammation and cell damage.
- **Susceptibility to Diabetes:** Ultra-processed foods (UPFs) cause **rapid blood sugar spikes** and [insulin](#) resistance over time.
 - Low in fibre and high in calories, they also contribute to **weight gain and obesity**, major diabetes risk factors.
- **Impact on Insulin Sensitivity:** **Low-AGE diets**, which primarily included foods cooked by boiling or steaming, showed **improved insulin sensitivity** and reduced inflammatory levels compared to those on high-AGE diets.
 - Reducing AGEs in the diet could be a **viable strategy** for mitigating diabetes risk, particularly for those at high risk of developing [type 2 diabetes](#).

Note:

- **Prevalence of Diabetes in India:** The prevalence of diabetes in India was **11.4% in 2021**. This equates to approximately **101 million Indians** suffering from diabetes.
- The **rapid nutrition transition** in India, with increased consumption of **refined carbohydrates, fats, and animal products**, along with **sedentary lifestyles**, has further escalated the

prevalence of obesity and diabetes.

Why are Ultra-Processed Foods Harmful to Health?

- **Saturated Fats, Salt, and Sugar:** Ultra-processed foods are typically loaded with **saturated fat**, **salt**, and **sugar**, which contribute to health problems such as **heart disease**, high blood pressure, and **diabetes**.
- **Negative Effects of Additives:** Ultra-processed foods often contain additives like **preservatives**, artificial colours, sweeteners, and emulsifiers.
 - These substances are suggested to have negative effects on health, potentially contributing to **inflammation, gut imbalance, and metabolic issues**.
- **Alters Nutrient Absorption:** The way food is processed can significantly affect how the body responds to it.
 - For example, when nuts are **eaten whole, less fat is absorbed** compared to when they are processed and oils are released, altering the nutrient profile and **caloric intake**.
- **Effects on Gut Health:** The **gut microbiome**, which is critical for **digestion and immunity**, may be disrupted by high levels of sugar, unhealthy fats, and additives commonly found in these foods.
- **Overall Lifestyle Impact:** People who consume a high amount of ultra-processed foods may also engage in other **unhealthy behaviours**, such as physical inactivity or irregular eating patterns.

What are Types of Food Processing?

- **About Food Processing:** It is the process of **transforming raw agricultural products** like grains, meats, vegetables, and fruits into more **valuable and convenient food products** with minimal waste.
- **Types of Food Processing:**
 - **Minimally Processed:** It includes **fruits, vegetables, milk, fish, pulses, eggs, nuts, and seeds** with no added ingredients and minimal alterations from their natural state.
 - **Processed Ingredients:** They are **added to other foods** rather than eaten by themselves, such as salt, sugar and oils.
 - **Processed Foods:** They are made by **combining minimally processed and processed ingredients** that can be made at home. E.g., **jam, pickles, cheese etc.**
 - **Ultra-Processed Foods:** They are **industrially manufactured** food products that typically contain ingredients not commonly found in a home kitchen.
 - These foods often include additives such as **preservatives, colorings, flavourings, emulsifiers, and sweeteners**.
 - They are usually **high in sugar, unhealthy fats, and salt**, while being low in fibre, vitamins, and minerals.
 - Foods marketed as **“instant” or “ready-to-eat,”** as well as **pre-packaged snacks and frozen meals** usually fall into this category.
 - Examples include **sugary beverages, packaged snacks, instant noodles,** and ready-to-eat meals.

Why is there an Increase in Consumption of Ultra-Processed Foods in India?

- **Urbanisation:** Fast-paced living in urban areas often necessitates **quick and convenient food options**.
 - Ultra-processed foods are readily available and **require minimal preparation**, making them appealing to busy individuals and families.
- **Cultural Shifts in Dietary Preferences:** There has been a cultural shift towards **Western-style diets**, characterised by a higher intake of fast food, **sugary snacks, and ready-to-eat meals**.
- **Rising Number of Working Women:** Ultra-processed foods are viewed as **time-saving alternatives** to traditional meal preparation, helping working individuals balance their professional and personal lives more easily.
- **Fresh Food Availability:** In urban areas, the availability of fresh foods may be limited.

- Ultra-processed foods can fill this gap by providing a **readily available alternative** for those who may struggle to access healthier options.
- **Aggressive Marketing and Availability:** UPFs are **heavily advertised**, often with misleading health claims that appeal to consumers.
 - Celebrity endorsements and **targeted advertising**, especially towards children, further promote these products.
- **Status Symbol:** There is a growing perception that consuming processed and packaged foods signifies a **higher social status**.

What are the Government Initiatives to Promote Healthy Food Habits?

- [World Food Safety Day](#)
- [Eat Right India](#)
- [State Food Safety Index](#)
- [RUCO \(Repurpose Used Cooking Oil\)](#)
- [Food Safety Mitra](#)

What are Recommendations to Curb Consumption of UPF?

- **Low-AGE Diet:** It is recommended to adopt a **diet low in AGEs**, consisting of **fruits, vegetables, whole grains**, and low-fat dairy products.
 - Cut down bakery and sugary foods and include non-starchy vegetables in meals.
- **Cooking Methods:** Foods cooked using low-temperature methods, such as **boiling or steaming**, should replace those prepared through high-temperature methods like **frying or roasting**.
- **Clear Definition of HFSS Foods:** The [Food Safety and Standards Authority of India \(FSSAI\)](#) should define **High in Fat, Sugar, and Salt (HFSS) foods** to help identify harmful products and guide regulations on their sale and consumption.
- **Nutrient-Based Taxation:** A **higher tax** on products with excessive fat, sugar, and salt would incentivise manufacturers to reformulate their offerings and make **healthier options more affordable**.
- **Revising PLI Scheme:** Revising the [Production Linked Incentive \(PLI\) scheme](#) to support nutrition-linked production can give healthier food products a competitive market advantage.
- **Restricting Promotions:** Marketing regulations should be **tightened** to limit the promotion of HFSS foods, particularly in **media targeting children**.
- **Strengthening Policies and Programs:** Existing initiatives like [Saksham Anganwadi](#) and [Poshan 2.0](#) need to be expanded to explicitly target the dual challenges of **inadequate nutrition and diet-related diseases**.

Drishti Mains Question:

Discuss the impact of ultra-processed foods (UPFs) on public health. What measures can be taken to discourage their consumption and promote healthier dietary practices?

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. Aspartame is an artificial sweetener sold in the market. It consists of amino acids and provides calories like other amino acids. Yet, it is used as a low-calorie sweetening agent in food items. What is the basis of this use? (2011)

(a) Aspartame is as sweet as table sugar, but unlike table sugar, it is not readily oxidized in human body due to lack of requisite enzymes

(b) When aspartame is used in food processing, the sweet taste remains, but it becomes resistant to oxidation

(c) Aspartame is as sweet as sugar, but after ingestion into the body, it is converted into metabolites that yield no calories

(d) Aspartame is several times sweeter than table sugar, hence food items made with small quantities of aspartame yield fewer calories on oxidation

Ans: (d)

Mains:

Q. What are the challenges and opportunities of the food processing sector in the country? How can the income of the farmers be substantially increased by encouraging food processing? **(2020)**

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