

Glycomet[®]-GP

Presents

SUGAR Pedia



Highlights:

Sugar Intake Vs. Diabetes

Indian Sugar Guide



HALT Diabetes
AN AWARENESS INITIATIVE



Healthy living and diabetes
World diabetes day
2014-16



Glycomet®-GP

MAKING
india
A DIABETES
CARE CAPITAL



In Type 2 Diabetes,

Start early with

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Metformin Hydrochloride 500 mg SR + Glimepiride 0.5 mg

Glycomet®-GP 1

Metformin Hydrochloride 500 mg SR + Glimepiride 1 mg

Glycomet®-GP 2

Metformin Hydrochloride 500 mg SR + Glimepiride 2 mg

Early uptitrate with

Glycomet®-GP 1/850

Metformin Hydrochloride 850 mg SR + Glimepiride 1 mg

Glycomet®-GP 2/850

Metformin Hydrochloride 850 mg SR + Glimepiride 2 mg

Glycomet®-GP 3/850

Metformin Hydrochloride 850 mg SR + Glimepiride 3 mg

Glycomet®-GP 0.5 FORTE

Metformin Hydrochloride 1000 mg SR + Glimepiride 0.5 mg

Glycomet®-GP 1 FORTE

Metformin Hydrochloride 1000 mg SR + Glimepiride 1 mg

Glycomet®-GP 2 FORTE

Metformin Hydrochloride 1000 mg SR + Glimepiride 2 mg

Glycomet®-GP 4 FORTE

Metformin Hydrochloride 1000 mg SR + Glimepiride 4 mg



Purity  utshines...100% commitment.

Abridged Prescribing Information; COMPOSITION: Glycomet GP 0.5: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 500mg and glimepiride USP 0.5mg. / Glycomet GP 1: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 500mg and glimepiride USP 1mg. / Glycomet GP 2: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 500mg and glimepiride USP 2mg. / Glycomet GP 1/850: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 850mg and glimepiride USP 1mg. / Glycomet GP 2/850: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 850mg and glimepiride USP 2mg. / Glycomet GP 3/850: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 850mg and glimepiride USP 3mg. / Glycomet GP 0.5 FORTE: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 1000mg and glimepiride USP 0.5mg. / Glycomet GP 1 FORTE: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 1000mg and glimepiride USP 1mg. / Glycomet GP 2 FORTE: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 1000mg and glimepiride USP 2mg. / Glycomet GP 4 FORTE: Each uncoated tablet contains metformin hydrochloride BP (as sustained release) 1000mg and glimepiride USP 4mg. **INDICATIONS:** Glycomet GP is indicated for the management of patients with type 2 diabetes mellitus (T2DM) when diet, exercise and single agent (metformin hydrochloride or glimepiride alone) do not result in adequate glycaemic control. **DOSEAGE AND ADMINISTRATION:** Dosage of Glycomet GP should be individualized on the basis of effectiveness and tolerability while not exceeding the maximum recommended daily dose of glimepiride 8mg and metformin 2000 mg. Initial dose: 1 tablet of Glycomet GP should be administered once daily during breakfast or the first main meal. Do not crush or chew the tablet. In several cases the tablet may remain intact during transit through the gastrointestinal (GI) tract and will be eliminated in faeces as hydrated mass (ghost matrix). Patients should be advised that this is normal as all drug components has already been released during GI transit. **CONTRAINDICATIONS:** In patients hypersensitive to glimepiride, other sulfonylureas, other sulfonamides, metformin or any of the excipients of Glycomet GP; pregnancy & lactation; diabetic ketoacidosis, diabetic pre-coma, in patients with renal failure or renal dysfunction, acute conditions with the potential to alter renal function (dehydration, severe infection, shock, intravascular administration of iodinated contrast agents), acute or chronic disease which may cause tissue hypoxia (myocardial infarction, shock, cardiac/respiratory failure) hepatic insufficiency, acute alcohol intoxication, alcoholism. **WARNINGS:** Keep out of reach of children. Patient should be advised to report promptly exceptional stress situations (e.g. trauma, surgery, febrile infections) blood glucose regulation may deteriorate and a temporary change to insulin may be necessary to maintain good metabolic control. In case of lactic acidosis, patient should be hospitalized immediately. **PRECAUTIONS:** In the initial weeks of treatment, the risk of hypoglycemia may be increased and necessitates especially careful monitoring. Serum creatinine levels should be determined before initiating treatment and regularly thereafter; at least annually in patients with normal renal function. Intravascular contrast studies with iodinated materials can lead to acute alteration of renal function. In patients in whom such study is planned, Glycomet GP should be temporarily discontinued at the time of or prior to the procedure, and withheld for 48 hours subsequent to the procedure and reinstituted only after renal function has been re-evaluated and found to be normal. Use of Glycomet GP should be discontinued 48 hours before any surgical procedure. **ADVERSE REACTIONS:** For glimepiride - Hypoglycaemia; temporary visual impairment; gastrointestinal symptoms like nausea, vomiting, abdominal pain, diarrhoea may occur; increased liver enzymes, cholestasis and jaundice may occur; allergic reactions may occur occasionally. For metformin - Gastrointestinal symptoms like nausea, vomiting, abdominal pain or discomfort may occur. For full prescribing information please write to: USV Ltd, Arvind Vitthal Gandhi Chowk, BSD Marg, Station Road, Govandi East, Mumbai, Maharashtra - 400088. Updated on: 11th February 2015

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Preface

USV, as your reliable healthcare partner, believes in supporting your endeavour to make India a 'Diabetes Care Capital'. We, at USV, believe in partnering with healthcare leaders with knowledge based platform to make better diabetes management decisions.

Traditionally, any occasion in India is celebrated with intake of sweets. Also, it is customary to "sweeten the mouth" after every meal. While sugar and sweets consumption have been popular and intrinsic to Indian culture

There is a strong relationship between sugar consumption and obesity. Parallel to the rise in overweight and obesity, high sugar intake increase risk of T2DM. Importantly, there are preliminary data to show that incidence of obesity and T2DM could be decreased by reducing consumption of Sugar Sweetened Beverages (SSBs) and other food items containing direct form of sugar.

Other prevention strategies, encompassing multiple stakeholders (government, industry, and consumers), should target on decreasing sugar consumption in the Indian population. In this context, dietary guidelines i.e. WHO/IDF show that sugar consumption should be less than 10% of total daily energy intake, but it is suggested that this limit be decreased further to 5% of total energy intake

On the occasion of World Diabetes Day, Glycomet-GP presents – '**SugarPedia**', which brings to you global & Indian recommendation on sugar intake along with a list of common Indian foods high on sugar.

We hope that this book will help you in enlightening diabetic patients and their families for reducing sugar consumption and hence to prevent T2DM.

Sincere regards,
Glycomet®-GP



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SWEET TOOTHED INDIANS

- Indians are known to have a 'sweet-tooth' and therefore consumption of sweets and sugar has been an integral part of Indian culture, traditions and religions since centuries
- In the present times, a decrease in physical activity and increase in sugar consumption makes the Indian population vulnerable to development of insulin resistance, abdominal adiposity and hepatic steatosis, thereby increasing the risk of type 2 diabetes mellitus (T2DM) and cardiovascular disease (CVD)
- Increase in prevalence of obesity can be attributed to increased energy intake, increased purchasing power and availability of high fat, sugar rich foods along with urbanisation and mechanisation



UNDERSTANDING SUGARS

- Glucose is the sugar fuel of life and structural unit of cellulose in plants
- Sucrose is the most commonly used table sugar supplying calories
- Sucrose is an important source of dietary carbohydrate and is employed as a sweetening agent in the food industry



- Lactose of milk is the most important carbohydrate for the nutrition of infants
- The bulk of dietary carbohydrate (starch) is digested and finally absorbed as glucose into the body

According to the expert consultations organised by the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations, as well as the scientific updates undertaken by the WHO, sugars can be classified as follows (Table 1).

Table 1: Classification of dietary sugars	
Sugar subgroups	Principal components
Monosaccharides	Glucose, fructose, galactose
Disaccharides	Sucrose (glucose and fructose), lactose (glucose and galactose), maltose (glucose and glucose), trehalose (glucose and glucose)
Free sugars	All monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer; sugars naturally present in honey, syrups and fruit juices

IMPORTANT SUGAR-RELATED DEFINITIONS

High sugar food

Foods containing more than 22.5 g of sugar per 100 g. This is determined based on total sugars within the product. It reflects the total amount of sugars in the product and also takes into account naturally-occurring sugars.

Sugar sweetened beverages (SSBs)

SSBs are those that contain caloric sweeteners and include:

- Soft drinks: Non-alcoholic, flavoured, carbonated or non-carbonated beverages usually commercially prepared and sold in bottles or cans
- Soda, pop, soda pop: Same as soft drink
- Fruit drinks, fruit juice or punches: Fruit juices and sweetened beverages of diluted fruit juices
- Sports drinks: Beverages designed to help athletes rehydrate as well as replenish electrolytes, sugar and other nutrients



- Tea and coffee drinks: Teas and coffees to which caloric sweeteners have been added
- Energy drinks: Most energy drinks are carbonated drinks that contain large amounts of caffeine, sugar and other ingredients, such as vitamins, amino acids and herbal stimulants
- Sweetened milks or milk alternatives: These are the beverages prepared by blending sweetened powder or syrup and milk



SUGAR CONSUMPTION IN INDIA

India is the second largest producer and the largest consumer of sugar worldwide.

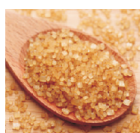
- Sugar sources in India:
 - White sugar
 - Honey: Fructose 38.2%, glucose 31.3%, maltose 7.1 %
 - Brown sugar: Calcium, potassium, iron, magnesium
 - Jaggery (gur): 65–85% sucrose along with calcium, potassium and iron
 - Khandasari: 94–98% sucrose, less refined than sugar, contains some calcium
 - Palm sugar: 70–79% sucrose, glucose and fructose 3–9%



White sugar



Honey



Brown sugar



Jaggery



Khandasari



Palm sugar

- High fructose corn syrup contains 55% fructose and 45% glucose, while sucrose or table sugar consists of 50% fructose and 50% glucose. The commonly consumed food containing sugar in India are listed in Table 2

Table 2: Commonly consumed foods in India containing natural or added sugars

Main meals	Snacks	Beverages	Additional
Rice, wheat, oats, millets, barley, breads, sugar/jaggery stuffed Indian bread, yoghurt, vegetables, etc.	Indian sweets(halwa, kheer), kulfi, chikki, puddings, fruit cakes, cookies, ice creams, etc.	Sugar cane juice, sweetened lassi, sharbat, aam panna, milkshakes, fruit juices, SSBs, etc.	Sweet chutneys, pickles, aamras, murabbas, honey, khandasari with ghee, jams, tomato ketchup
			

- It is important to note that the intake of ‘traditional sugars’ (honey, jaggery) has declined whereas the intake of sugars from SSBs has increased. In addition, it has been noted that when the consumption from jaggery/khandasari and SSBs are added to that of white sugar, the total sugar intake in Indians exceeded the average global per capita consumption (Figure 1)
- It is found that consumption of sugar and honey has shown slight reduction in rural and urban areas, whereas there is a substantial increase in sugar-containing food items (miscellaneous foods), particularly in the urban areas

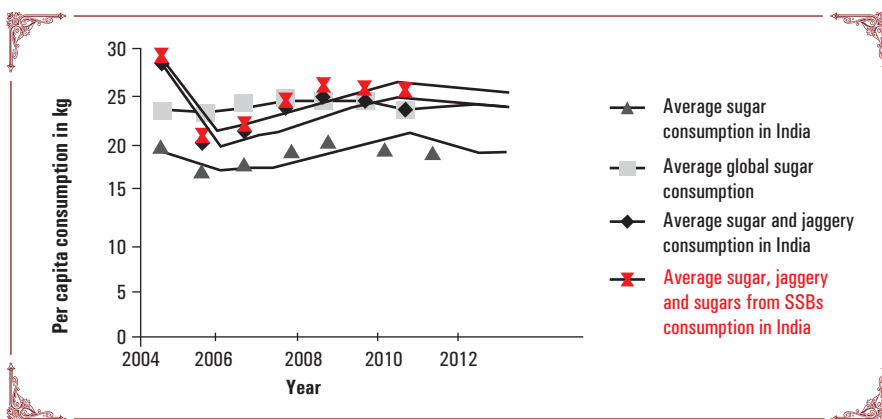


Figure 1: Trend line showing average intake of sugar globally and total sugar intake from various sources



CONSUMPTION OF SSBs

- SSBs provide a significant contribution and are the third largest industry in India after packed tea and biscuits, attracting direct foreign investments of over \$1 billion. SSB sales in India have shown a drastic increase of 13% per year since 1998



- The easy availability of SSBs in rural and urban areas contributes to higher per capita consumption (Figure 2)

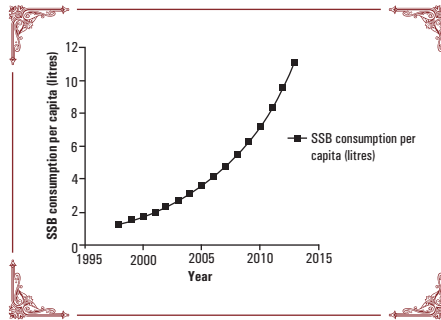


Figure 2: SSB consumption in litres per capita in India

SUGAR CONSUMPTION PATTERN IN INDIAN STUDIES

- A study showed that diets across all regions in India that were characterised by dairy, fried snacks and sweets were positively associated with abdominal adiposity
- The dietary patterns in Trivandrum and Mumbai characterised by intake of vegetables and pulses were inversely related to diabetes and hypertension
- High fat intake was particularly seen in Delhi and Mumbai
- In addition to sugar, many of the Indian sweets are often prepared with a significant amount of saturated fat from ghee or coconut components



- The traditional beverages consumed in Asian Indian households include lemon water (with sugar and salt), tea (with sugar) and lassi (blending yoghurt with water and salt/sugar)
- Local practices also increase sugar consumption in meals, for example in the state of Gujarat, there is a practice of adding sugar to all gravies, breads, curd, aamras (mango pulp), etc.

ADVERSE EFFECTS OF EXCESS SUGAR CONSUMPTION

- Accumulation of overall body fat
- Accumulation of intra-abdominal fat
- Insulin resistance
- Diabetes
- Metabolic syndrome
- Hyperuricaemia
- Hypertriglyceridaemia
- Fatty liver
- High levels of free fatty acids
- Increased levels of non-esterified fatty acid (NEFAs) causing:
 - Hepatic glucose production
 - Impairment of β -cell function
 - Hepatic steatosis



SSB CONSUMPTION AND CVD RISK

According to studies by Dhingra et al., individuals who consumed 2 SSBs/day had a marginal 18% greater risk of developing hypertension

- A NHS study showed that those who consumed 2 SSBs/day had a 35% increased risk of coronary heart disease (CHD) compared to infrequent consumers
- In the CARDIA study, higher SSB consumption was associated with a number of cardiometabolic outcomes such as high waist circumference, high low-density lipoprotein (LDL) cholesterol, high triglycerides and hypertension



- SSB consumers had an increased risk for developing hypertriglyceridaemia and low levels of high-density lipoprotein (HDL) cholesterol compared to infrequent consumers
- The LDL particle size was reduced on consumption of high fructose and high sucrose SSBs and a more atherogenic LDL subclass distribution was seen in these individuals
- A sucrose-rich diet consumed for 10 weeks resulted in significant elevations of postprandial glycaemia, insulinaemia and lipidaemia compared to a diet rich in artificial sweeteners
- SSBs may affect risk of CHD in a relatively short time of just a few years through effects on inflammation, which influences atherosclerosis, plaque stability and thrombosis
- In SSB consumers, the serum levels of haptoglobin, transferrin and C-reactive protein (CRP) were elevated



SUGAR INTAKE – DENTAL CARIES – CVD – THE LINK ESTABLISHED

- Excessive sugar intake predisposes to development of dental caries
- Poor oral hygiene status can cause a variety of oral disorders such as periodontitis
- Poor oral hygiene is closely related to CVD health
- Gum disease is a risk factor for development of coronary artery disease
- The close association between excessive sugar intake–dental caries–CVD disease is even more important in case of diabetes patients



SUGARS, OBESITY AND DIABETES – THE LINK ESTABLISHED

- A number of studies have reported positive associations between intake of SSBs and weight gain or risk of overweight and obesity in both children and adults
- Excess adiposity, particularly around the central depots, is one of the most well-established risk factors for development of T2DM. There is a significant amount of evidence to show that consumption of SSBs is associated with increased risk of diabetes through effects on adiposity and independently through other metabolic effects (Figure 3)

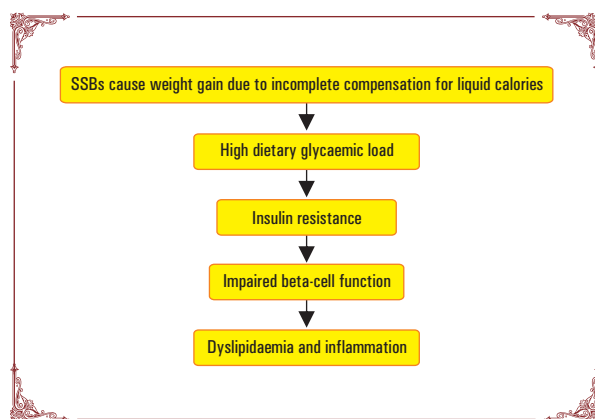


Figure 3: Metabolic effects of SSBs

- Limiting the intake of SSBs is a simple change, which if implemented could have a measurable impact on weight control and risk of T2DM as well as other metabolic diseases in the general population
- Consumption of SSBs causes a rapid increase in blood glucose and insulin levels. This rapid increase along with consumption of large volumes, contributes to a high dietary glycaemic load (GL). High GL diets stimulate appetite, induce weight gain and are associated with development of both glucose intolerance and insulin resistance
- Basu *et al.* studied that if SSB consumption is continued at the same rate then the Indian overweight and obesity prevalence would be expected to increase from 39% to 49% and the incidence of T2DM would be expected to rise in parallel from 319 to 336 per 100,000 per year over the period 2014–2023 (Figures 4 and 5).



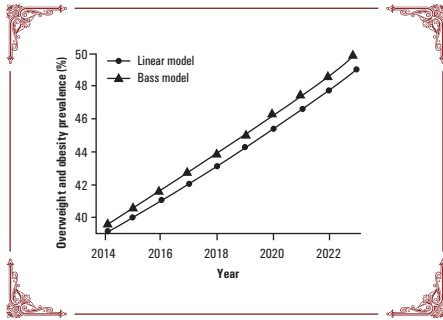


Figure 4: Projected trajectory of overweight and obesity in India if SSB consumption continues at the same rate

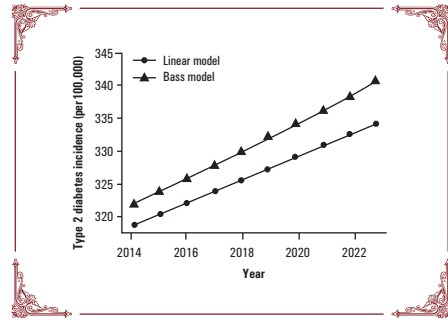


Figure 5: Projected trajectory of T2DM incidence in India if SSB consumption continues at the same rate

- The Framingham Offspring study showed that those who consumed soft drink per day had a 37% higher risk of developing obesity compared to non-consumers
- According to observational analysis of the PREMIER trial, reducing SSB intake by 1 serving/day was associated with a weight loss of 0.49 kg at 18 months
- The NHS II cohort demonstrated that those who consumed SSB/day had a 83% greater risk of developing T2DM. Another study showed that those who consumed 2 SSBs/day had a 24% greater risk of developing T2DM compared to those who consumed < 1 SSB/month
- Dhingra *et al.* showed that those who consumed 1 SSB/day (diet or regular) had a 39% greater risk of developing metabolic syndrome over the course of 4 years

GLOBAL RECOMMENDATIONS ON SUGAR INTAKE

WHO GUIDELINES FOR SUGAR INTAKE IN ADULTS AND CHILDREN

- Reduced intake of free sugars throughout the life course (strong recommendation)
- Reducing the intake of free sugars to less than 10% of total energy intake (strong recommendation)
- Reduction of the intake of free sugars to below 5% of total energy intake (conditional recommendation)

WHO remarks

- Free sugars include monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates
- For countries with a low intake of free sugars, levels should not be increased. Higher intakes of free sugars threaten the nutrient quality of diets by providing significant energy without specific nutrients
- These recommendations are based on the totality of evidence reviewed regarding the relationship between free sugar intake and body weight (low and moderate quality evidence) and dental caries (very low and moderate quality evidence)
- Increasing or decreasing free sugars is associated with parallel changes in body weight and the relationship is present regardless of the level of intake of free sugars. The excess body weight associated with free sugar intake results from excess energy intake
- Intake of free sugars is not considered an appropriate strategy for increasing caloric intake in individuals with inadequate energy intake if other options are available
- These recommendations do not apply to individuals in need of therapeutic diets, including for the management of severe and moderate acute malnutrition. Specific guidelines for the management of severe and moderate acute malnutrition are being developed separately



If the average sugar consumption daily per person is more than 25 gm/day, they may be at a risk of developing obesity, diabetes, dental cavities and CVD

INSTITUTE OF MEDICINE OF THE NATIONAL ACADEMIES

- Increase access to safe drinking water in public places to encourage water consumption instead of SSBs



AMERICAN DIABETES ASSOCIATION, 2015

- Carbohydrate intake from vegetables, fruits, whole grains, legumes and dairy products should be advised over intake from other carbohydrate sources, especially those that contain added fats, sugars or sodium
- Substituting sucrose-containing foods for isocaloric amounts of other carbohydrates may have similar blood glucose effects; consumption should be minimised to avoid displacing nutrient-dense food choices
- People with diabetes and those at risk should limit or avoid intake of SSBs to reduce risk of weight gain and worsening of cardiometabolic risk profile

**AMERICAN ACADEMY OF PEDIATRICS**

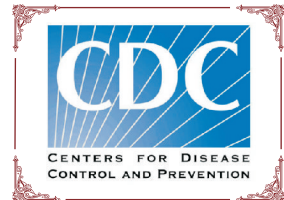
- Reduce the intake of SSBs and foods
- Sweetened beverages and naturally sweet beverages such as fruit juice, should be limited to:
 - 118–177 mL per day for children 1–6 years old
 - 236–354 mL per day for children 7–18 years old

**AMERICAN MEDICAL ASSOCIATION**

- Limit SSBs

**CENTERS FOR DISEASE CONTROL AND PREVENTION**

- Communities should discourage consumption of SSBs

**UNITED STATES DEPARTMENT OF AGRICULTURE
DIETARY GUIDELINES ADVISORY COMMITTEE**

- The incidence and prevalence of overweight and obesity can be reduced by reducing the overall calorie intake and increasing physical activity
- Avoid SSBs

**CANADIAN DIABETES ASSOCIATION**

- Limit intake of free sugars to less than 10% of total daily calorie (energy) intake. This is approximately 50 grams (12 teaspoons) of free sugars consumption per day based on a 2000 calorie diet
- Limit intake of SSBs and drink water in its place



- Promote intake of whole foods and reduce intake of free sugars throughout life for overall health

AMERICAN HEART ASSOCIATION (AHA)



- The AHA suggests an added-sugar limit of no more than 100 calories per day (about 6 teaspoons or 24 grams of sugar) for most women and no more than 150 calories per day (about 9 teaspoons or 36 grams of sugar) for most men
- There is no nutritional need or benefit that comes from eating added sugar
- A good thumb rule is to avoid products that have a lot of added sugars, including skipping foods that list 'sugar' as the first or second ingredient
- Soft drinks are a prime source of extra calories that can contribute to weight gain and provide no nutritional benefits
- The average can of a sugar-sweetened soda or fruit punch provides about 150 calories. Most of these drinks usually contain high-fructose corn syrup. This is equivalent to 10 teaspoons of table sugar
- As part of a healthy diet, an adult consuming 2,000 calories daily should aim for no more than 450 calories (1064 mL) a week from SSBs

NATIONAL HEALTH SERVICES, UK



- The government recommends that free or added sugars should not make up more than 5% of the energy (calories) from food and drink each day
- The maximum limit is 30 grams of added sugar a day for adults
- Children should have not more than:
 - 19 grams a day of sugar for children aged 4–6 years old
 - 24 grams a day of sugar for children aged 7–10 years old
- Added sugars are found in foods such as sweets, cakes, biscuits, chocolates and some fizzy drinks and juice drinks. Intake of these foods should be cut down
- Sugars also occur naturally in foods such as fresh fruits and milk, but there is no need to cut down on these types of sugars



• IDF FRAMEWORK FOR ACTION ON SUGAR •

- IDF estimates that 382 million people suffer from diabetes. This forms 8.3% of the adult population worldwide. In approximately 90% cases, obesity and high free sugar consumption in the form of SSBs are risk factors
- IDF supports the WHO conditional recommendation to reduce recommended sugar intake to 5% daily energy intake
- The IDF framework for action on sugar proposes 12 clear measures, which demonstrate IDF's commitment to continuous engagement with national governments and the WHO in order to arrest T2DM. These have been explained in the next section

IDF measures

- The introduction of clear, unambiguous, colour-coded front of pack labelling which gives total sugar content, including all types of sugar, including those with alternative names (such as high fructose corn syrup)
- A ban on advertising of SSBs and high sugar foods to children and adolescents
- Revision of healthy eating guidelines to reduce consumption of foods with naturally high sugar content (e.g., certain fruits and fruit juices)
- A ban on sponsorship of sporting events by manufacturers of SSBs or high sugar foods
- A ban on selling SSBs and high sugar foods in canteens and vending machines in schools and policies to restrict access in workplaces
- An obligation to make clean drinking water freely available in all schools, places of employment and in public open spaces
- Government incentives (including taxes) to reduce consumption of SSBs and high sugar foods
- Government incentives to promote production of leafy vegetables and fruits in preference to sugar
- Government incentives to increase availability and affordability of fresh vegetables, fresh fruits and clean drinking water
- A regulatory framework for reformulation of processed foods to reduce sugar content
- Public health campaigns to educate people about the health risks associated with excess sugar intake
- Further research to be undertaken to establish links between sugar intake and diabetes



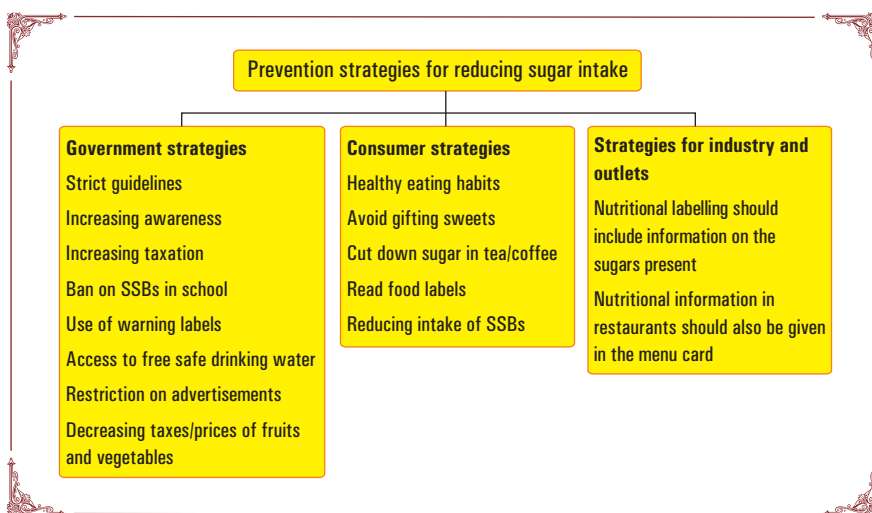
RECOMMENDATIONS ON SUGAR INTAKE FOR INDIANS

1. Free sugars should be less than 10% of total calories/day, which includes all added sugars and sugars present in honey, syrups and fruit juices.
2. Alternatives to sweetened beverages can be water, skimmed buttermilk, tender coconut water and low fat milk.
3. Indian sweets like halwa and kheer, puddings, ice creams, sweetened biscuits, cakes, pastries and baked goods are high in added sugars and should be restricted.
4. Encouragement for reading of food labels to determine sugar content. Some of the names in the ingredients list for the presence of added sugars include brown sugar, corn syrup, dextrose, honey, malt syrup, sugar, molasses and sucrose
5. Artificial sweeteners could be used in moderation. These do not contain any beneficial nutrients.



PREVENTION STRATEGIES FOR REDUCING SUGAR INTAKE IN INDIA

Strategies involving multiple stakeholders such as the government, industry and consumers should aim at decreasing sugar consumption in the Indian population.



SUGAR CONSUMPTION AND DIABETES

- It is believed that people with diabetes cannot consume sugar as it would lead to hyperglycaemia
- People with diabetes can incorporate sugars in their diet considering them as 'treats' and should be eaten in restricted amounts
- The type of carbohydrate can affect how quickly blood glucose levels rise. However, it is seen that the total amount of carbohydrate eaten affects blood glucose levels more than the type. It is now agreed that substituting small amounts of sugar for other carbohydrate containing foods into meals can still keep blood glucose levels on track
- Diabetes patients can eat sugar if they:
 - Include sweets as a part of healthy eating plan
 - Maintain a good physical activity
 - Monitor their blood sugars
- Fruits can be consumed by diabetes people as they contain lot of fibre, vitamins and minerals. However, since fruits contain sugars they need to be accounted in the meal plan
- It is important to keep into consideration the serving portions of these foods
- Fruit can be eaten in exchange for other sources of carbohydrate in the meal plan such as starches, grains or dairy
- Fruits that can be eaten by diabetes patients in moderation:
 - Cantaloupe
 - Watermelon
 - Apples
 - Dates
 - Papaya
 - Orange
 - Strawberries
 - Tomatoes
 - Avocado
 - Banana



- Fruit juices: Sugar levels in fruit juices can cause a significant spike in blood sugar levels. Compared to whole fruits and vegetables, juices do not offer much fibre



- Whole fruits and vegetables are more advisable for diabetes patients
- Excess sugar consumption in diabetes patients can also have an impact on dosing schedule of insulin and other oral anti-diabetic agents
- If an individual has consumed excessive sugar following a festival or any other occasion he/she should:
 - Monitor his/her sugar levels
 - Increase his/her physical activity after doctor's recommendation
 - Adjust medication doses with the doctors consent
- The Food and Drug Administration has approved 5 artificial sweeteners as safe:
 - Saccharin
 - Aspartame
 - Acesulfame-k,
 - Neotame (both acesulfame-k and neotame are used in beverages, dairy products, pharmaceutical products, chewing gum, etc.)
 - Sucralose

FOOD LABELS AS A TOOL TO WATCH SUGAR INTAKE

Labels on food items give essential information about the ingredients, nutrients and how much they contribute to what an average adult needs each day. From the diabetes perspective, it is important for patients to choose foods that are less in calories, saturated fat, trans fat,



- The list of commonly eaten Indian sweets and their sugar content is given at the end of this book
- Based on the sugar recall, the average consumption of sugar can be determined and high consumers can be counselled for appropriate behaviour change
- Importance of sugar recall exercise:
 - To assess the amount of sugar consumed by an individual
 - To assess a person's eating pattern and dietary habits
 - To instil positive behaviour change by restricting sugar intake
 - Collaborative efforts in warding off metabolic diseases

INDIAN SUGAR GUIDE

WHAT IS INDIAN SUGAR GUIDE?

The Indian Sugar Guide is a comprehensive compendium of commonly consumed food items in India containing added sugar. It has been developed under professional guidance by a group of renowned registered dieticians based in Mumbai. This guide gives us an approximate estimation of sugar content in a single serving of different food items.

WHOM IS THIS GUIDE MEANT FOR?

This guide is meant for one and all. An individual can easily refer to and understand the amount of sugar he/she is consuming from a single serving/portion of a particular food item.

HOW TO USE THIS GUIDE?

An individual can record the amount of sugar consumed in a log book/diet diary with the help of average values mentioned against each of the food items. These values can be recorded for an entire day and continued for up to seven days (one complete week). At the end of seven days, the average value of sugar that is consumed per day can be estimated. If the average daily consumption of sugar exceeds 25 grams/day, it indicates that the person is at an increased risk of lifestyle related disorders like obesity, diabetes, dental caries and heart disease (WHO Guideline 2015).

WHAT DOES THE MANOMETER MEAN?

The manometer gives an indication of the approximate table spoons of sugar in a particular food item against daily allowed limit of 25 grams. For e.g., if manometer crosses 25 grams, that means, the daily sugar consumption limit is already crossed and hence further sugar intake should be restricted.



SUGAR CONTENT IN COMMON INDIAN FOODS

Cold drinks

Pepsi – 1 glass (200 mL)

22 g – 4.5 tsp



Sprite – 1 glass (200 mL)

24 g – 5 tsp



Maaza – 1 glass (200 mL)

26 g – 5 tsp



Lipton ice tea – 1 glass (200 mL)

18 g – 3.5 tsp



Red Bull – 1 can (250 mL)

27 g – 5.5 tsp



Tropicana mix fruit juice (200 mL)

27 g – 5.5 tsp



Amul Kool – 1 bottle (200 mL)

16 g – 3 tsp



Hot beverages

Bournvita – 1 serving (20 g)

16 g – 3 tsp



Tea/Coffee – 1 cup

5 g – 1 tsp



Chocolates

Dairy milk – 1 bar (34g)

19.3 g – 4 tsp



Bournville dark chocolate – 1 bar (33 g)

15.5 g – 3 tsp



5 star – 1 bar (10.5 g)

6 g – 1 tsp



Kitkat – 1 pack (18 g)

8.8 g – 1.5 tsp



Munch – 1 bar (10.1 g)

3.9 g – $\frac{3}{4}$ tsp



Energy bar – 1 pack (42 g)

12.4 g – 2.5 tsp



Cakes

Plum cake – 1 Pc (45 g)

7.6 g – 1.5 tsp



Mava cake – 1 Pc (27 g)

6 g – 1 tsp



Biscuits

Oreo biscuit – 1 Biscuit

3.7 g – 3/4 tsp



Bourbon biscuit – 1 Biscuit

3.7 g – 3/4 tsp



Britannia 5 grain digestive – 1 Biscuit

3.4 g – 2/3 tsp



Parle-G biscuit – 1 Biscuit

1.3 g – 1/3 tsp



Rusk toast – 1 Rusk

2.4 g – 1/2 tsp



Common breakfast items

Kellogg's Special K – 1 serving (27 g)

7.5 g – 1.5 tsp



Kellogg's Cornflakes – 1 serving (30 g)

2.5 g – 1/2 tsp



Baggry's Muesli 1 serving – 30 g

2 g – 1/2 tsp



Ice-creams

Chocolate ice-cream (54 g/100 mL) – 1 cup

20 g – 4 tsp



Fruit ice-cream – 1 cup (80 g)

13.6 g – 2.5 tsp



Supplements

Sorbet – ½ cup

27 g – 5 tsp



Jam – 1 tbsp

10 g – 2 tsp



Yakult – 1 bottle (65 mL)

10 g – 2 tsp



Ketchup – 1 tbsp

3.8 g – 1/4 tsp



Delicacies – Northern India

Lassi – 1 big glass

30 g – 6 tsp



Rice kheer – 1 serving

25 g – 5 tsp



Gajar halwa – 1 serving

20 g – 4 tsp



Thandai – 1 glass

17 g – 3.5 tsp



Delicacies – Northern India (contd...)

Sheer korma – 1 serving
15 g – 3 tsp



Til Gajak – 1 pc (20g)
10 g – 2 tsp



Kalakand – 1 pc
5 g – 1 tsp



Dahi wada – 1 pc
5 g – 1 tsp



Delicacies – Southern India

Jigarthanda – 1 glass
40 g – 8 tsp



Payasam – 1 dessert bowl
16 g – 3 tsp



Mysore Pak – 1 no.
14.8 g – 3 tsp sugar



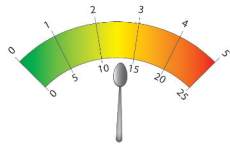
Sweet sevai – 1 dessert bowl
14.4 g – 3 tsp sugar



Delicacies – Southern India (contd...)

Sweet adai – 1 no.

13 g – 2.5 tsp



Avalose unda – 1 no.

13 g Jaggery – 2.5 tsp



Unniappam – 1 no.

10.3 g – 2 tsp



Delicacies – Eastern India

Malpua – 1 no.

31 g – 6 tsp



Mishti doi – 1 cup

20 g – 4 tsp sugar



Rabdi – 1 cup

20 g – 4 tsp



Chennar payesh – 1 cup

20 g – 4 tsp



Delicacies – Eastern India (contd...)

Sweet Lapsi/Daliya – 1 serving

16 g – 3 tsp



Rasagulla – 1 no.

15 g – 3 tsp



Rasabali – 1 serving

12 g – 2.5 tsp



Puli pithe – 1 no.

7 g – 1.5 tsp



Sandesh – 1 no.

5 g – 1 tsp



Delicacies – Western India

Falooda – 1 glass

60 g – 12 tsp



Shrikhand – 1 serving

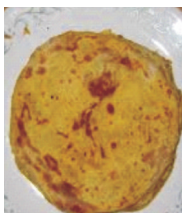
25 g – 5 tsp



Delicacies – Western India (contd...)

Puran poli – 1 no (medium)

20 g – 4 tsp



Coconut barfi – 1 no

20 g – 4 tsp



Gulab jamun – 1 no

18 g – 3.5 tsp



Peanut chikki – 1 no 1.5 inch square

16 g – 3 tsp



Jalebi – 1 no

15 g – 3 tsp



Kaju katli – 1 no

15 g – 3 tsp



Delicacies – Western India (contd...)

Modak – 1 no.

12 g – 2.5 tsp



Aam ras – 1 serving

10 g – 2 tsp

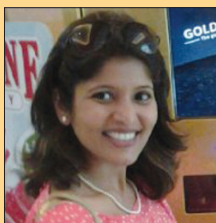


Malai peda – 1 no

5 g – 1 tsp



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Disclaimer:

For all the sweets made with sugar syrup, sugar content depends on the absorption. The values mentioned are an approximation and may differ based on different recipes, regional variations and taste preferences. The brand names used in this book are purely for educational/academic purpose only. We do not intend to endorse/offend any of the brands used in this book.



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Metformin Hydrochloride 850 mg SR + Glimepiride 2 mg

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