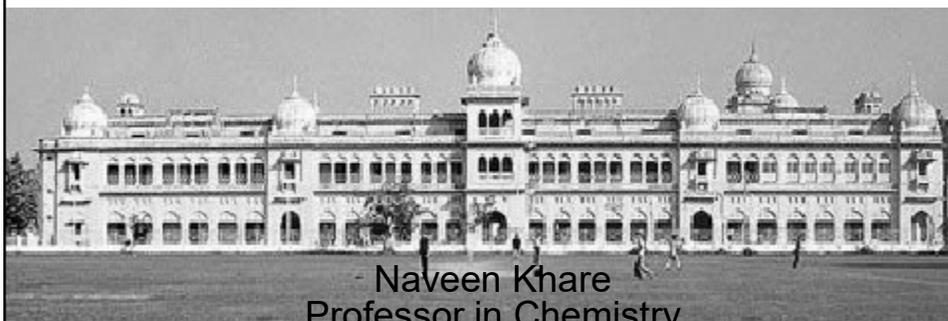


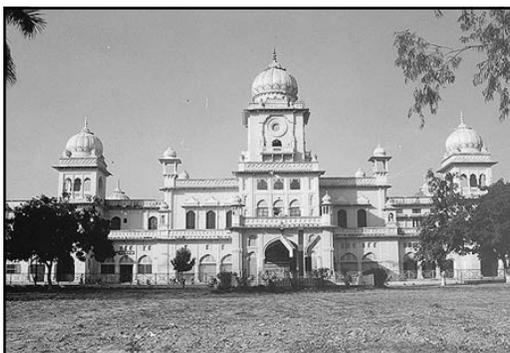
# **CARBOHYDRATES & DIABETES**

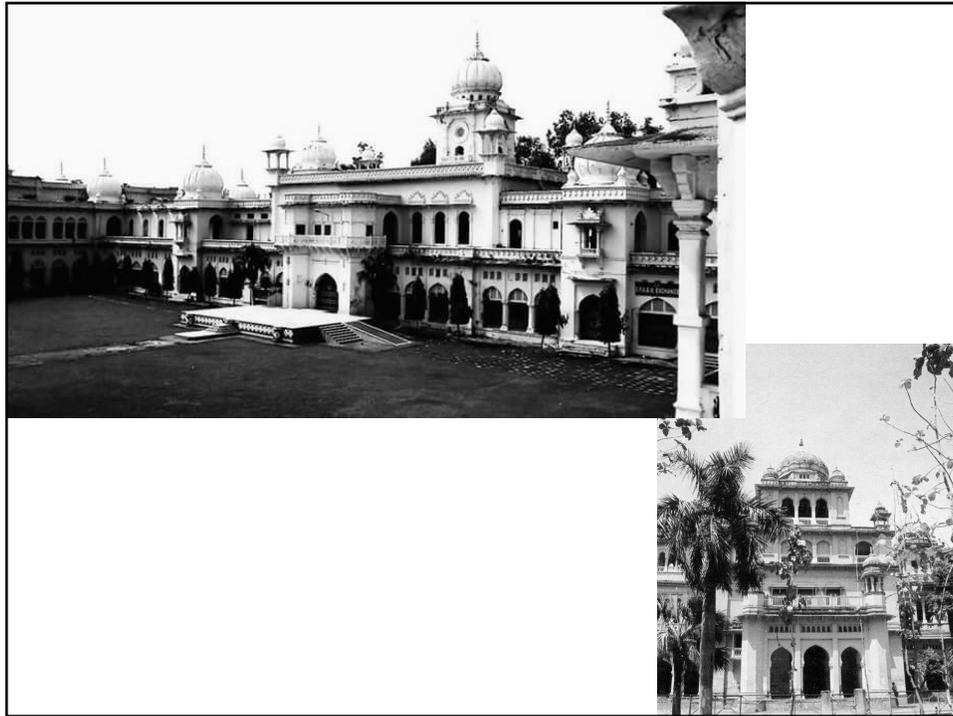
(STRUCTURE, COMPOSITION, ROLE,  
BLOOD GLUCOSE

FOOD, DIABETES AND ITS MANAGEMENT  
SIMPLE & COMPLEX CARBOHYDRATE)



- Naveen Khare  
Professor in Chemistry  
UNIVERSITY OF LUCKNOW





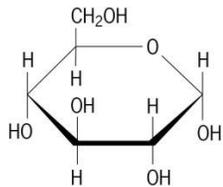
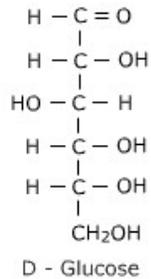
## DIFFERENCE BETWEEN A TEACHER AND A PROFESSOR

A Professor of Philosophy at the University of Houston has explained the difference between high school teachers and university professors.

He said, “I am your professor, not your teacher.” He stressed that, “Teachers are evaluated on the basis of learning outcomes, generally as measured by standardized tests. If you don’t learn, then your teacher is blamed.”

He added, “It is not part of my job to make you learn. At university, learning is your job—and yours alone. My job is to lead you to the fountain of knowledge. Whether you drink deeply or only gargle is entirely up to you.”

## Carbohydrates



Compounds containing C, H and O

General formula:  $\text{C}_x(\text{H}_2\text{O})_y$

All have **C=O** and **-OH** functional groups.

### Classified based on

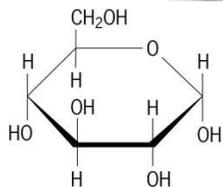
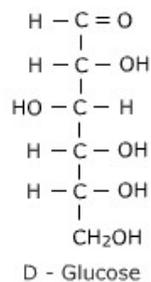
- Size of base carbon chain
- Number of sugar units
- Location of C=O
- Stereochemistry

**They are polyhydroxy aldehydes or ketones having asymmetrical carbon atoms.**

**Widely distributed and Glucose is the most abundant organic molecule on Planet.**

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## Types of carbohydrates



Classifications based on number of sugar units in total chain.

<b>Monosaccharides</b>	single sugar unit
<b>Disaccharides</b>	two sugar units
<b>Oligosaccharides</b>	3 to 10 sugar units
<b>Polysaccharides</b>	more than 10 units

Chaining relies on 'bridging' of oxygen atoms  
**glycoside bonds**

6



- Total Calories required by health human 2000-4000
- 1 Cal. = heat required to raise the temperature of 1000 gm of water  
from 15 to 16°C
- Carbohydrate may comprise 80% of total calories intake in diet
- Diet Carbohydrate-
  - Sucrose (Glucose & Fructose)
  - Lactose (Glucose & Galactose)
  - Starch (Glucose)

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## **ROLE OF CARBOHYDRATE II**

■ Beside giving food & structural support, it is recently known that Carbohydrate also plays important role in biological communication in controlling -

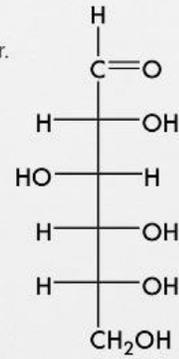
- Microbial infections
- Egg fertilization
- Inflammation
- Cancer growth and
- In Blood groups determinants
- Currently Carbohydrates are used as Biofuel

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## D-glucose

- Glucose is an aldohexose sugar.
- Common names include dextrose, grape sugar, blood sugar.
- Most important sugar in our diet.
- Most abundant organic compound found in nature.
- Level in blood can be as high as 0.1%



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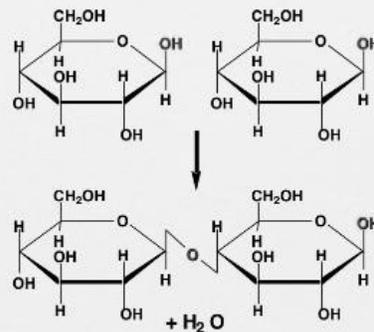
## Di and Oligosaccharides

$\alpha$  or  $\beta$  -OH group of cyclic monosaccharide can form a link with another one (or more).

glycosidic bond

sugar -O- sugar

oxygen bridge

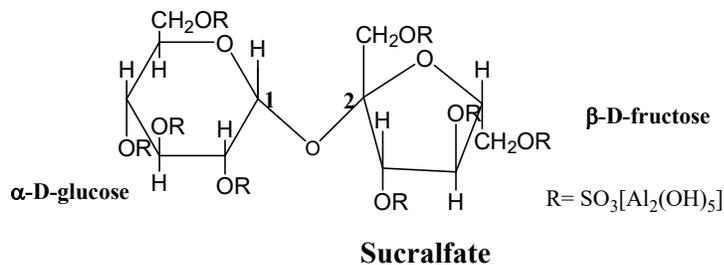


Maltose, Lactose, **Sucrose** etc.....

## Some Synthetic Sucrose Derivatives

- **Sucralfate:**

- It is basic aluminium salt of the fully sulfated derivative of sucrose.
- **Uses:** Treatment of peptic and duodenal ulcers.
- Mechanism: Form protective complexes with proteins.
- It binds to the mucosa, thus creating a physical barrier that impairs diffusion of hydrochloric acid in the gastrointestinal tract and prevents degradation of mucus by acid. It also stimulates bicarbonate output and acts like an acid buffer with cytoprotective properties.



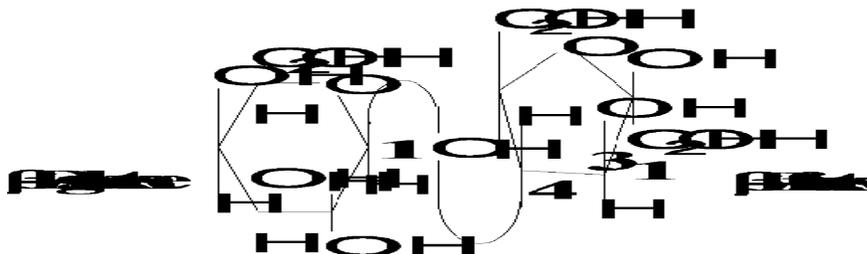
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- **Sucrose octaacetate:**

- Very bitter in taste but safe to consume.
- Used as denaturant (to make unfit for drink/eat).

- **Lactulose** (4-O- $\beta$ -D-Galactopyranosyl- $\beta$ -D-fructofuranose):

- Uses: Laxative in chronic constipation.



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## Synthetic Sweeteners

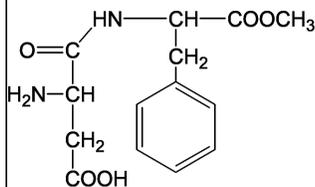
- We are born with a preference for sweets over salty things and it remains with us throughout our lives.
- The solution for being able to satisfy their sweet tooth, **without disadvantages** of sugar is the invention of non nutritive sweeteners.
- These sweeteners are low calorie substances used as sweeteners to replace sugars.

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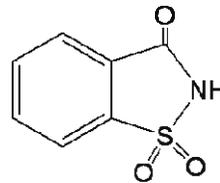
**Aspartame:** is found as Sugar Free, NutraSweet and Equal.

You can use it in both cold and warm foods.

It may lose some sweetness at high temperatures or in alkaline medium. .



**Aspartame**



**Saccharin**

**Saccharin:** can be found as Sweet 'N Low and Sugar Twin.

You can use it in both hot and cold foods.

Avoid this sweetener if you are pregnant or breastfeeding.

Doubtful carcinogenic effect.

**Sorbitol:**

Reduction product of glucose.

Half sweetening power of sucrose.

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## Natural Sweeteners

- **Glycyrrhizin:**

Triterpenoidal saponin obtained from Liquorice (sweet root extract from *Glycyrrhiza glabra*).

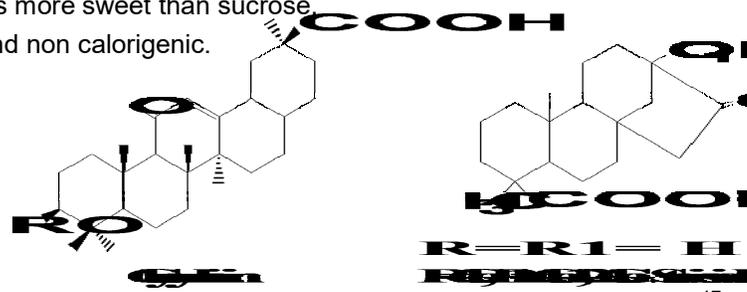
50 times more sweet than sucrose but develops unpleasant taste by time.

- **Steviol & Stevioside:**

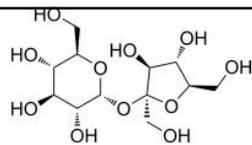
Diterpene and its glycoside obtained from *Stevia rebaudiana*.

300 times more sweet than sucrose

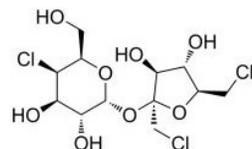
Stable and non calorogenic.



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Sucrose



Sucralose

Said to be SUGAR but not SUCROSE.

Can be used it in hot and cold foods, including in baking and cooking.

Processed foods often contain it

➤ Artificial sweeteners are bad due to toxicity, side effects and confused adverse side effects.

➤ When you eat such compounds, the sweet receptors send signals to brain to release effective biochemicals, enzymes for the required healthy metabolism but they get confused.

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**How sweet it is!**

Sugar	Sweetness
Lactose	0.16
Galactose	0.32
Maltose	0.33
Sucrose	1.00
Fructose	1.73
Aspartame	180
Saccharin	450
Sucralose	600

Values are relative to sucrose.

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**Blood Glucose and Diabetes**  
**(A Metabolic Syndrome)**

**Every third person on this earth is either prediabetic or diabetic.**

- Diabetes is a disease in which the body is unable to properly use and store glucose.
- Glucose backs up in the bloodstream — causing one's blood glucose (sometimes referred to as blood sugar) to rise too high.

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**There are two major types of diabetes.**

**In Type 1 diabetes** (formerly called juvenile-onset or insulin-dependent), the body **completely stops producing any insulin**, a hormone that enables the body to use glucose found in foods for energy.

People with type 1 diabetes must take daily insulin injections to survive. This form of diabetes usually develops in children or young adults, but can occur at any age.

**Type 2 diabetes** (formerly called adult-onset or non insulin-dependent) results when the body **doesn't produce enough insulin and/or is unable to use insulin properly** (insulin resistance).

This form of diabetes usually occurs in people who are over 40, overweight, and have a family history of diabetes, although today it is increasingly occurring in younger people, particularly adolescents.

- ❖ Humans are hardwired to prefer sweet from birth.
- ❖ Sugars are a type of carbohydrate.
- ❖ When we eat carbs, they stimulate the release of the feel-good brain chemical serotonin.
- ❖ Most brain cells are influenced in some way by serotonin. This includes brain cells related to mood, sexual function, sleep, memory and learning, and appetite.
- ❖ No wonder sweet things make us feel so good

- This includes brain cells related to mood elevator, sleep, memory and learning, and appetite. No wonder sweet things make us feel so good.
- The **outside walls of a supermarket** tend to be where staples are stocked.
- That's so shoppers have to move through the entire store to get to necessities like produce, milk, eggs, breads, meats, and fish -- which also happen to be the basis of a healthy diet that's low in added sugars.

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### **Diabetics have false sense of well-being**

#### **90% of Patients Unaware of High Sugar Levels'**

- Nine of 10 people with diabetes believe their blood sugar is under control even though it's not, found a new survey conducted by the Association of Physicians of India (API).
- There are reasons to view diabetes as one of the most serious public health problems facing India. In terms of prevalence, India is second largest in the world.
- These sugar level fluctuations, a factor observed in the Indian population with diabetes, puts people at increased risk of complications, including neuropathy (nerve problems: 24.6%), cardiovascular complications (heart disease: 23.6%), kidney problems (21.1%), retinopathy (eye problem: 16.6%) and foot ulcers (5.5%), said the survey.

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# More young people now get deadlier type-2 diabetes

Sanchita Sharma  
 sletters@hindustantimes.com

**NEW DELHI:** Type-2 diabetes that normally afflicts older adults is striking young Indians and it's striking them harder.

Though young people with type-2 diabetes do not need insulin to survive, they are at greater risk of life-threatening complications, such as kidney damage and heart disease, than people with insulin-dependent diabetes.

One in every four (25.3%) people under 25 with diabetes in India has adult-onset type-2 diabetes, which, by definition, should strike only older adults with a family history of diabetes, obesity, unhealthy diets and inactivity, data from the Indian Council of Medical Research's (ICMR's) youth diabetes registry shows.

## ONE IN EVERY FOUR PEOPLE UNDER 25 WITH DIABETES IN INDIA HAS ADULT-ONSET TYPE-2 DIABETES

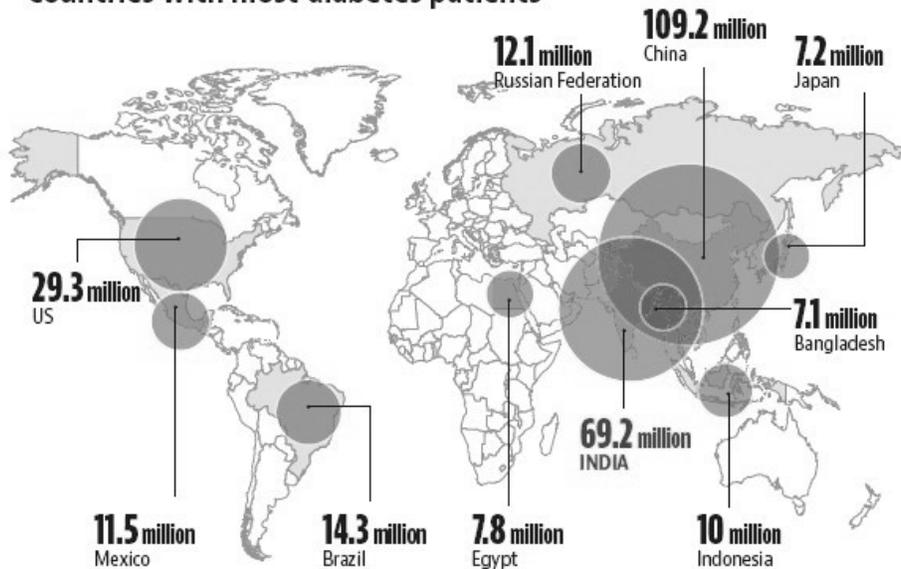
the registry shows. "The risk of complications for younger persons with type-2 diabetes is two-fold to threefold higher than type-1 diabetes," says Dr Nikhil Tandon, head of endocrinology and metabolism, AIIMS, which is partnering in the registry.

Type-1 diabetes is an autoimmune disease where the immune system destroys the cells producing insulin in the pancreas, necessitating the use of insulin. "Adult-onset" type-2 diabetes occurs when the body cannot use insulin produced efficiently because of metabolic reasons.

ICMR says that 25% adults under 25 years of age are effected with high blood glucose and related problems.

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### Countries with most diabetes patients



\*People ages 20-79 with diabetes; Source: Diabetes Atlas, International Diabetes Federation, 2015

## '25% of Indians may die of lifestyle diseases before 70'

Sushmi.Dey@timesgroup.com

New Delhi: With increasing prevalence of lifestyle diseases in India, one out of four Indians is at risk of dying from non-communicable diseases like diabetes, cardio-vascular ailments or cancer before the age of 70, according to estimates of various global and domestic organizations. The findings are part of a white paper released by the Confederation of Indian Industry and academia on Wednesday.

"Every year, roughly 5.8 million Indians die from heart and lung diseases, stroke, cancer and diabetes. In other words, 1 in 4 Indians risks dying from an NCD before they reach the age of 70," the white paper said.

Experts say the government needs to urgently build awareness programmes for NCDs in line with that for HIV and tuberculosis.

"Prevalence of NCDs is a result of lifestyle patterns which have changed significantly over the last decade. The government's programmes so

**Experts say the govt needs to urgently build awareness programmes for NCDs in line with that for HIV and tuberculosis**

far have been focused around HIV and tropical diseases. But with the increasing NCD burden, awareness needs to be created and ramped up from community level to across the country" said Kevin L. Walker, Executive Director, Partnership to Fight Chronic Disease, a global organization working towards raising awareness about how to counter diseases like diabetes and cardiovascular disabilities.

Many other global organizations including World Health Organisation and other agencies of the United Nations have now carved out specific strategies to tackle the rising disease burden due to changing lifestyle and eating habits.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)

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### Aerated soft/cold drinks extreme side effects-

#### 60% stone ailment patients in city below 35

#### **Junk food and faulty lifestyle**

Recently, more than 60% of the patients diagnosed with stone ailments at King George's Medical University are in their 20s or early 30s. Till about a decade ago, stones were largely diagnosed in those above 45 years of age.

Stones diagnosed in human body are hard crystals made of minerals and acidic salt. They settle easily in the kidney or the urinary tract. If large, they are difficult to pass and can cause extreme pain. If ignored, stones can become a site for tumors and cancers.

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Adequate amount of 3-4 liters of water (10-12 glasses without any sugar, sodium or any other ingredient) is essential to flush out substances that can form kidney stones.

A high tendency to consume aerated drinks and consumption of food rich in high sodium added to the ills caused by lack of water. "Both aerated drinks and food rich in sodium like chips, dips, fast food, etc absorb water in the body yet do not make people thirsty."

High levels of sodium affects calcium metabolism in the body causing a condition called hypercalciurea which leads to formation of stones. Similarly, aerated drinks too decrease pH level of urine which doesn't allow complete dissolution of waste products generated in body, leading to crystal formation and strengthening of previously existing crystals."

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**SO HERE ARE THE TOP 6 CAUSE OF KIDNEY DISEASE:**

❖ Delaying going to a toilet - The urine that stays in the bladder multiplies harmful bacteria quickly. Once the urine refluxes back to the urethra and kidneys, the toxic substances can result in kidney infections, then urinary tract infections, and then nephritis, and even uremia.

❖ Eating too much salt, one should eat no more than 5.8 grams of salt daily.

❖ Eating too much meat. Too much protein in your diet is harmful for your kidneys. Protein digestion produces ammonia – a toxin that is very destructive to your kidneys.

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- ❖ Drinking too much caffeine which is a component of many sodas and soft drinks. It raises your blood pressure and your kidneys start suffering
- ❖ Not drinking sufficient water. Our kidneys should be hydrated properly to perform their functions well. Otherwise the toxins can start accumulating in the blood, as there isn't enough fluid to drain them through the kidneys.

SUNDAY HINDUSTAN TIMES, LUCKNOW  
MARCH 03, 2013

hindustantimes | metro | c

INTERVIEW SUNITA NARAIN, DIRECTOR GENERAL, CSE

## Have a right to know what you are eating

Packed noodles, burgers and snacks contain alarmingly high levels of trans fats, salt and sugar. Neither the companies nor the government is bothered to inform public about the food contents. Sunita Narain talks to **Gulam Jeelani** on the dangers ahead. Excerpts.



**Your lab has exposed ill-effects of junk food many times. Has it made any impact?**  
We all know junk food is bad, yet we eat it. But, do we ever check what we are eating and whether that packet of chips or noodles has what it claims to have? Our youngsters are getting hooked to junk food. People should know what it actually contains. Through the findings, we want to inform public how bad junk food can be and how those who consume it run the risk of heart diseases in the prime of their life. I can say

**What's really bad about the junk food?**  
Both WHO and National Institute of Nutrition (NIN) have set certain benchmarks of how much salt, sugar, carbohydrates and fats every individual can have daily to stay healthy. The companies have not been maintaining this quality at all. We at CSE, have tested a host of samples of popular packed food items, such as potato chips, also bhajia, noodles, burgers, French fries, food sticks along with branded soft drinks. We found that having just one serving of these food spurs our daily diet schedule and requirement.

**You also mentioned noodles?**  
awareness is increasing by the day. But, the pace is slow.

**How bad are they?**  
The NIN benchmark for the

**Bollywood biggies promote such?**  
It is an irony of sorts. Some

**Why not**  
reality of most, our at, go and lightness. n see our art for the us.

**KNOW NARAIN**  
\* Sunita Narain has been with the Centre for Science and Environment (CSE) since 1982.  
\* She is currently the director general of the centre and the director of the Society for Environmental Communications.  
\* She is also publisher of the fortnightly magazine Down To Earth.  
\* In 2005 and again in 2008 and 2009, she was included by US Journal Foreign Policy as one of the world's 100 public intellectuals.

\* In 2005, she was awarded the Padma Shri by the Indian government.  
\* She has also received the World Water Prize for work on rainwater harvesting and for its policy influence in building paradigms for community based water management.  
\* Narain began her work in the early 1980s as a co-researcher with Anil Agarwal, an eminent and committed environmentalist who gave the country its environmental concern and message.

**The NIN benchmark for the maximum salt for one person in a day is 6 gram. The WHO puts it at 5 gram. The normal 80-gram popular noodles pack that many consume daily has over 3.5 gram of salt – enough to take care of over 60% of our allowed daily salt intake. Not a happy choice**

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TOI. June 26, 2019

THE TIMES OF INDIA, LUCKNOW  
WEDNESDAY, JUNE 26, 2019

TIMES OF INDIA TRENDS

## Junk food linked to infertility in young men

### Males Who Eat Unhealthy Food Produce Fewer Sperm Than Those Who Eat A Balanced Diet

Alex Matthews-King

Young, fit men whose diets are made up of pizza, burgers, chips and other processed staples have drastically lower sperm counts than those who eat fresher foods, a study suggests.

A team of US and Danish researchers, led by Harvard University, found men whose diet most closely matched a stereotypical "western diet" had the lowest average sperm counts. This amounted to an average of 25.6 million sperm per ejaculate fewer than those who ate the least red and pro-



cessed meat, sugary drinks and starchy carbohydrates.

Despite being at their reproductive peak in some cases, some of the men already had clinically low sperm counts, below the 20 million sperm level, which means they might struggle to conceive naturally.

Ready meals and fast food have made processed and red meat, fat, sugary drinks and simple carbohydrates cheap and convenient cornerstones of the daily diet.

This is driving soaring rates of obesity and related diseases like diabetes and cancer.

But the latest findings suggest it may also be a major driver in the mounting fertility crisis that has seen average sperm counts in the West crash by 60% since the 1970s.

The study used sperm samples from around 2,000 men, with an average age of 29, un-

dergoing a routine medical exam before joining the Danish armed forces for national service. It used diet surveys to group the men into four broad categories and found men who ate a "prudent" balanced diet, with plenty of fish, lean meats, fruit and vegetables, had the healthiest total sperm count.

This was followed by vegetarians, whose diets also included soy and eggs, and then men who ate a Scandinavian diet with more processed meats, whole grains, cold fish and dairy.

Sperm have a lifespan of around three months and changing diets could allow sperm production to recover.

However the study also found that men on the Western diet had lower levels of a chemical called inhibin-B which could indicate damage to sperm-producing Sertoli cells, which could indicate the effects of a Western diet might be more permanent.

The research is being presented at the European Society of Human Reproduction and Embryology (ESHRE) annual meeting in Vienna, and experts said the findings should be a wake-up call for young men.

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- ❖ Sleep deprived less than 4.5 hr a day for seven days = results in insulin intolerance.
- ❖ For longer periods like this may result in hyper glycaemic conditions and diabetes.
- ❖ Recently, even high air pollution raises the blood glucose level
- ❖ Resting Metabolic Rate (RMR) - Involuntary metabolism

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## Types of Heart Disease in People With Diabetes

People with diabetes are at risk for two main types of heart disease:

**Coronary artery disease (CAD).** This refers to the slow narrowing of the arteries in the heart by fatty deposits, called plaques. If a cholesterol plaque suddenly ruptures, the resulting blockage in one of the heart's arteries causes a heart attack.

**Congestive heart failure (CHF).** This is a chronic condition in which the heart loses the ability to pump blood effectively. Shortness of breath with exertion and leg swelling are the main symptoms of heart failure.

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# Indians among laziest in world, walk barely 4,300 steps a day: Study

Himanshi.Dhawan  
@timesgroup.com

**New Delhi:** Drive or walk? Given a choice, most Indians will opt for a car no matter how short the distance. Well, now a 46-country study has shown that we are among the laziest countries in the world. India is ranked at 39, with people averaging just 4,297 steps a day. That's among the findings of a study by Stanford University researchers using step-counters installed in most smartphones to track the walking activity of about 700,000 people in 46 countries

### WALKS OF LIFE

Nationality	Steps Per Day
Indians (39th of 46)	4,297
Men	4,606
Women	3,684
Hong Kong (1st)	6,880
Americans (30th)	4,774
Indonesians (46th)	3,513
World average	4,961

The top half of the chart includes Hong Kong, China, Thailand and Japan.

### Diagnostic Criteria for Pre-diabetes and Diabetes

Category	HbA1C*	Fasting Plasma Glucose Test (FPG)	2-Hour Oral Glucose Challenge
Acceptable	≥ 5.6	Below 100 mg/dl	Below 140 mg/dl
Pre-diabetes	5.7% - 6.4%	100-125 mg/dl	140-199 mg/dl
Diabetes	≥ 6.5%	126 mg/dl or above	200 mg/dl or above

\*At the time of diagnosis if HbA1C is more than 9 or despite oral medication it is 8.5-Insulin may be needed

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### **Preventing Heart Disease by Managing Your Diabetes**

To make sure your diabetes treatment is working, experts recommend following the "ABCs":

**A1c:** This is a blood test that provides a rough assessment of blood sugar control for the previous three months. An A1c level less than 6.5 is ideal for most people with diabetes.

**Blood pressure:** Most people with diabetes should maintain a blood pressure below 130 over 80.

**Cholesterol:** An LDL less than 100 and an HDL greater than 40 are the goals for most people with diabetes.

- LDL tends to form plaques in arteries while HDL helps to clear out plaques before they break off to cause a heart attack or stroke.

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- HDL may increase with regular exercise / walking.

## What causes high blood glucose?

- ❖ Unhealthy Ultra processed/Semi processed and processed food rich in high fat, high sugar and salt, are becoming very popular due to taste and convenience against the traditional wholesome healthy food.
- ❖ Results in obesity and diabetes and many other diseases.
- ❖ Too much bad fast food (Junk food)
- ❖ Too little exercise or physical activity
- ❖ Skipped or not enough diabetes pills or insulin (it slows the metabolic rate)
- ❖ Insulin that has spoiled after being exposed to extreme heat or freezing cold
- ❖ Stress, illness, infection, injury or surgery
- ❖ Celebrate success without food and party

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TOI 19.06.18

THE TIMES OF INDIA, LUCKNOW  
TUESDAY, JUNE 19, 2018

TIMES  TRENDS

## Decoded: Why we can't stop eating junk food

### Foods Rich In Fats, Carbohydrates Hijack Brain's Reward Centres

Berlin: Foods that are rich in both fats and carbohydrates have a particularly strong influence on our brain's reward system, say scientists who explain why we cannot keep our hands off unhealthy junk foods like french fries and candy bars.

Both fatty and carbohydrate-rich foods activate the reward system in the brain, albeit via different signalling pathways. When carbohydrates and fats come together in the food, this effect is intensified. In nature, there are no foods that contain a high proportion of fats and carbony-

drates either they are rich in fat, as in nuts, or rich in carbohydrates, as in the case of potatoes or cereals. An exception is breast milk.

"Probably we are influenced by breast milk to respond intensively to food rich in carbohydrates and fats and perceive this as particularly rewarding, because this is vital," said Marc Timpf from the Max Planck Institute for Metabolism Research in Germany.

The scientists wanted to know if people show preferences for foods of different caloric sources. To answer

drates either they are rich in fat, as in nuts, or rich in carbohydrates, as in the case of potatoes or cereals. An exception is breast milk.



**IT'S ALL IN THE HEAD:** Once triggered by fatty foods, the reward system overrides satiety, resulting in over-eating and obesity.

and thereby the willingness to pay was examined. Most of the money was offered for the high-fat and high-carbohydrate food, indicating that it was apparently the most attractive to the participants of the study.

The researchers recorded the subjects' brain activity in a magnetic resonance tomography. The measurements showed that a combination of fats and carbohydrates activates the brain areas of the reward system more intensively than the other foods offered. This finding is consistent with the results of the study. A reward that has contributed to human survival in evolution is destroying us in today's world of abundance.

"We are not meant to say

no all the time. That is why we usually do not stop eating, even though we're full," said Timpf.

Obviously, the reward signals overshadow satiety — over-saturation and obesity are the consequence.

In addition, the estimation of the nutritional value of high-fat and carbohydrate-rich food is difficult, asking the participants to estimate the caloric content of the presented food, they succeeded in the high-fat or carbohydrate food relatively accurately. In contrast, they were often wrong when it came to foods high in fats and carbohydrates.

The findings could play an important role in the treatment of overweight people.

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TOI  
24.03.2019

CONSUMER CONNECT INITIATIVE  
CONSUMING UNHEALTHY FOOD IS NOT ONLY BAD FOR YOUR WAISTLINE  
BUT ALSO FOR YOUR MENTAL HEALTH, SAYS A NEW STUDY

# EATING JUNK FOOD can cause depression

**C**raving for fast food and junk is something we cannot say no to. We are as guilty as you are. What are the most common triggers that make you eat junk? A hectic workday or a nasty argument with your loved one - the way pizza and french fries comfort you in such situations, nothing else can.

Recently, British and French scientists analysed food and mood data from 3,486 men and women (average age 55) working in an office.

Each person filled out a food frequency questionnaire that asked how often they had eaten a specific portion size of food during the previous year, with answers ranging from 'never' to 'six or more times a day.'

Two dietary patterns were determined: the 'whole food pattern' (a high daily intake of healthy fruits, vegetables and fish) and the 'processed food pattern' (noshing on lots of sweetened

desserts, chocolates, fried food, processed meat, refined grains, high-fat dairy products and condiments). Five years later,

the same participants filled out a questionnaire that measured symptoms of depression and imbalance.

After taking into account factors like age and sex, the researchers found that high consumption of the processed foods was more likely to lead to depression, while

Junk food is defined as processed food with negligible nutrient value



people who ate healthier were least likely to be depressed.

"Our finding shows a strong association between diet and depressive symptoms after controlling for a large range of socio-demographic factors, and



for health behaviours such as smoking, physical activity, and health status," says Tasnime Akbaraly, study's author.

"The effect of diet on depressive symptoms didn't go down after we adjusted for other indicators of a healthy lifestyle, such as smoking, physical activity, and body mass. What we found isn't a spurious association," Akbaraly added.

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## How do people know if they have diabetes?

People with diabetes frequently experience certain symptoms. These include:

- being very thirsty
- frequent urination
- Diabetes Keto Acidosis (DKA)-Fruity smell in breath (of acetone)
- weight loss
- increased hunger
- blurry vision
- irritability
- tingling or numbness in the hands or feet
- frequent skin, bladder or gum infections
- wounds that don't heal
- extreme unexplained fatigue

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## Who gets diabetes?

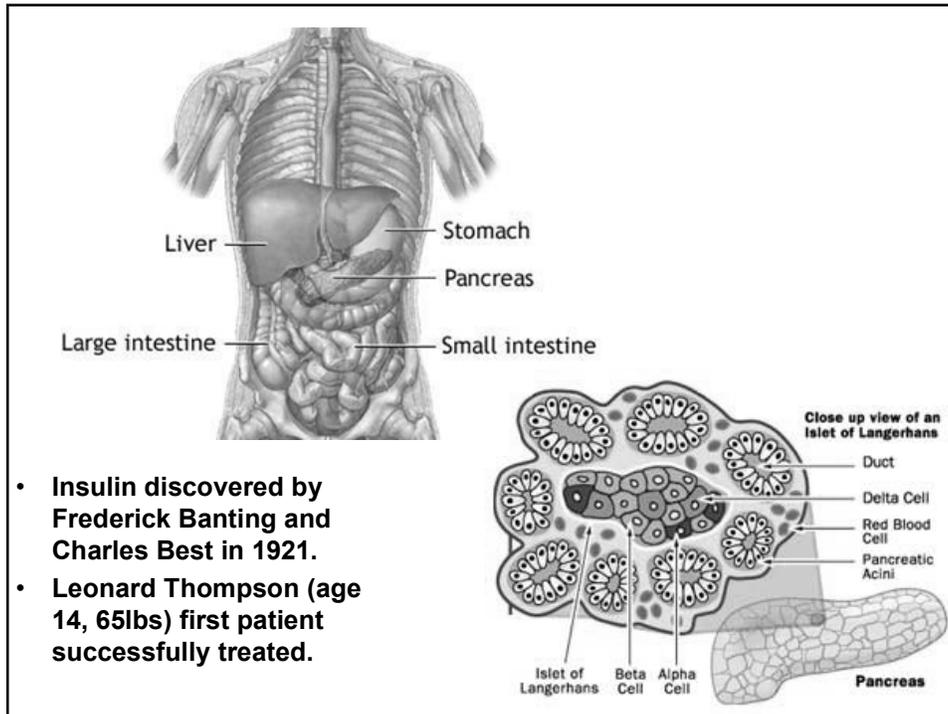
- Diabetes can occur in anyone.
- However, people who have close relatives with the disease are somewhat more likely to develop it.
- Other risk factors include obesity, high cholesterol, high blood pressure, and physical inactivity.
- The risk of developing diabetes also increases as people grow older. People who are over 40 and overweight are more likely to develop diabetes, although the incidence of type 2 diabetes in adolescents is growing.
- People who develop diabetes while pregnant (a condition called gestational diabetes) are more likely to develop full-blown diabetes later in life.

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## BBC – Food Chain, Feb. 16.

- ❖Sucrose not essential for life, one can live without it.
- ❖only four tea spoon is moderate to eat/drink if need be
- ❖Sugar Tax is imposed in some countries like in tobacco and alcohol since sugar is also health hazard
- ❖benefits of artificial sweeteners drink - none.
- ❖Results suggest that no change in obesity is observed.
- ❖Best is to drink pure water as the healthiest drink.

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- In today's hectic and busy life style (mostly urbanites)
- vast majority are under mental / emotional stress
- and distress,
- leading an unhealthy life style i.e.
- (lack of exercise, couch potato, junk food consumption...list goes on).
- 33% Secondary School students who skip breakfast fared poor in the examination

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# Hooked to gaming, they urinated in clothes, ignored two break-ins

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**New Delhi:** Noted Stanford psychologist Philip Zimbardo last year suggested that online gaming would prove to be the real Fall of Man someday soon. Although most experts scoffed at his theory laid down in the book 'Man Disconnected', addiction to online gaming certainly seems to be taking a toll on the mental health of some adolescents and youths.

The case of two brothers who were addicted to gaming and required a month of rehabilitation in the psychiat-

## DEEP FIXATION

Brothers aged 19 and 22 needed psychiatric attention after they became compulsive gamers

► Turned irritable, **skipped meals, did poorly at studies**

► Didn't wash for days, **defecated and urinated in their clothes**



► Didn't answer phone calls or doorbell. **House robbed twice** in their presence

ry ward of Ram Manohar Lohia (RML) Hospital, New Delhi, should serve as a warning to those whose thumbs seem glued to gaming consoles.

The elder of the two, aged 22, was in his second year of

engineering, while the younger, 19, was in class XII. By the time their parents brought them to hospital, they had become socially, and to a large extent physically, dysfunctional.

Always engrossed in gaming, they had no time for studies, meals, bathing or changing clothes. They slept fitfully, ignored phone calls and the doorbell, and twice turned a blind eye to robbers cleaning out their house. The most odious symptom of their decline was the habit of defecating and urinating in their clothes while playing.

Dr Ankur Sachdeva, the psychiatrist who treated them at RML, is now posted at the ESIC Medical College and Hospital in Faridabad. He said the brothers' condition had gradually worsened over two years.



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TIMES TREND

## Being a couch potato bad for over-60s

### Verbal Memory in Adults Who Watch TV For Over 3 Hours Negatively Affected: Study

betty images/Stockphoto

**Nicholas Bakalar**

Experts generally agree that watching a lot of television is bad for children. Now a new study suggests it may not be very good for adults, either.

The British study, in Scientific Reports, included 3,590 people, average age 67, who were free of dementia at the start of the study. All reported their TV watching time at the study's start.

Participants took two tests. One was of verbal memory, in which they were asked to recall, after a short delay a list of spoken words. The second was a test of semantic fluency in which researchers timed them reciting the names of as many animals as they could. Researchers administered the tests at the start and then again six years later.

They found that people who watched more than three and half hours of television a day had an average decrease of 8 to 10% in their verbal memory scores, compared with a 4 to 5% decrease in those who watched less.

There was no association of TV watching with semantic fluency. The study controlled for education, medical conditions, physical activity and other factors.

"This is not something to worry about," said the lead author, Daisy Fancourt, a researcher at University College London. "But if you're watching more than three hours a day, it's worth trying to engage in social and physical activities and things that are mentally challenging like crosswords or the arts activities." BY NEWS SERVICE

TIME TO TURN IT OFF

TECHNOLOGICAL ANALYSIS