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**Madras Diabetes Research Foundation (MDRF), Chennai**  
and the  
**World Health Organization (WHO) New Delhi**  
under the GOI-WHO collaborative programme 04-05.

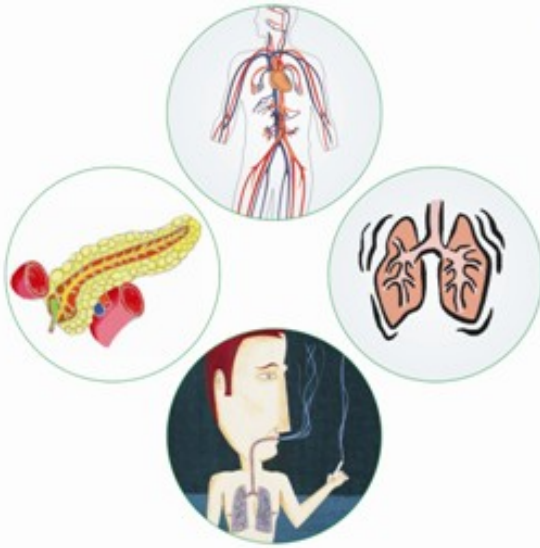
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**What are  
non-communicable  
diseases?**

**NON-COMMUNICABLE DISEASES**





• Non-communicable diseases are chronic diseases that occur due to urbanization. They include

- Cardiovascular diseases
- Diabetes
- Chronic respiratory disorder and
- Cancer

• Chronic, noncommunicable diseases have emerged as leading cause of morbidity and mortality worldwide.

• Several behavioural changes make us more likely to develop non-communicable diseases.

## NON-COMMUNICABLE DISEASES

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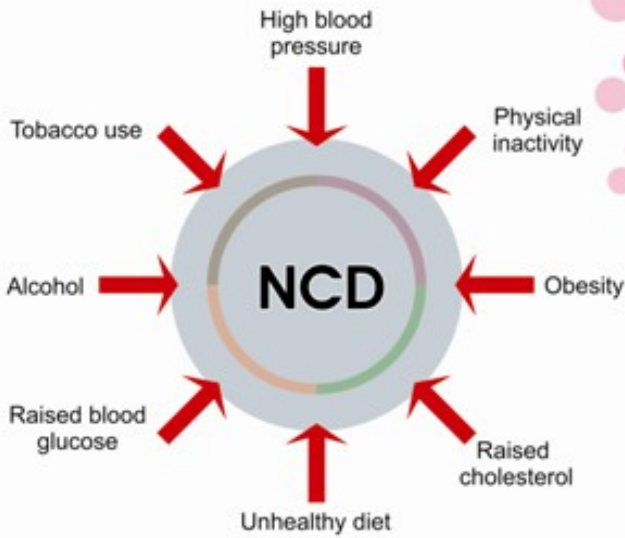


What are  
the risk factors for  
non-communicable  
diseases?

## RISK FACTORS

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- Risk factors are factors that increase our chance of having a particular disease.
- Some risk factors are linked to choices we make in the way we live.
- They include
  - Tobacco and alcohol use
  - Unhealthy diet
  - Low intake of vegetables and fruits
  - High intake of sugar, salt and fat
  - Physical inactivity
  - Obesity and
  - Stress

## RISK FACTORS

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Why is it important  
to know one's  
blood pressure?

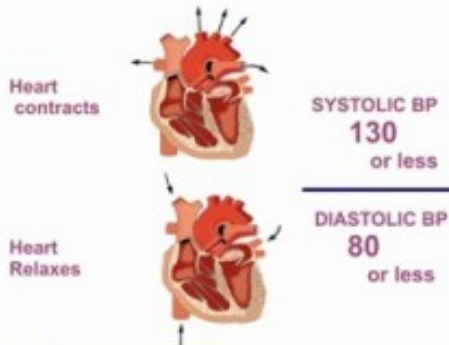
## BLOOD PRESSURE

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### NORMAL BP\*:



\* Note: BP varies with age

- Blood pressure is measured in millimeters of mercury (mmHg) by inflating a cuff around the upper-arm in a sitting position using a machine called 'sphygmomanometer or an automatic machine'.
- Blood pressure has two numbers:
  - The first is the systolic high blood pressure i.e., the pressure or the pressure when the heart is contracting and
  - The second is the diastolic blood pressure or the pressure when the heart is resting.
- A person is said to have high blood pressure, or hypertension, when the first pressure is above 130 mmHg or the second is above 80 mmHg.
- High blood pressure can lead to heart attacks, stroke and kidney problems.

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What causes  
high blood pressure?

# BLOOD PRESSURE

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• The various causes for high blood pressure include:

- Family history of high blood pressure
- Overweight or obesity
- High intake of salt in the diet and drinking too much alcohol
- High blood pressure can also be due to some illnesses, such as kidney disease and also some medicines

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What can  
be done to reduce  
high blood pressure?



## BLOOD PRESSURE

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- As high blood pressure makes the heart work harder than it should, causing it to get weaker over time, regular monitoring, at least once in a year is mandatory.
- High blood pressure or hypertension can be reduced by:
  - Maintaining ideal body weight
  - Staying active
  - Consuming a healthy diet that is low in salt and fat and increasing vegetable and fruit intake.
  - Avoiding tobacco and
  - Avoiding alcohol use
- If one is already following the above and the blood pressure is still high, then he/she should consult a physician & start drug treatment.

## BLOOD PRESSURE



How does tobacco use  
increase the risk for  
non-communicable  
disease?

## TOBACCO CONSUMPTION





### TOBACCO USE CAN DAMAGE



• Blood vessels



• Lungs



• Heart

- Tobacco, in whichever way it is used such as in
  - Cigarette
  - Beedi
  - Tobacco chewing or
  - Snuffis very harmful to health and is the most important preventable risk factor for NCDs.
- Tobacco use damages
  - Lungs, blood vessels, heart and is a major cause for cancer & lung disease.
- Up to 75% of oral cancers are attributable to the use of tobacco.
- If one is using tobacco, one should try to quit as soon as possible.

# TOBACCO CONSUMPTION

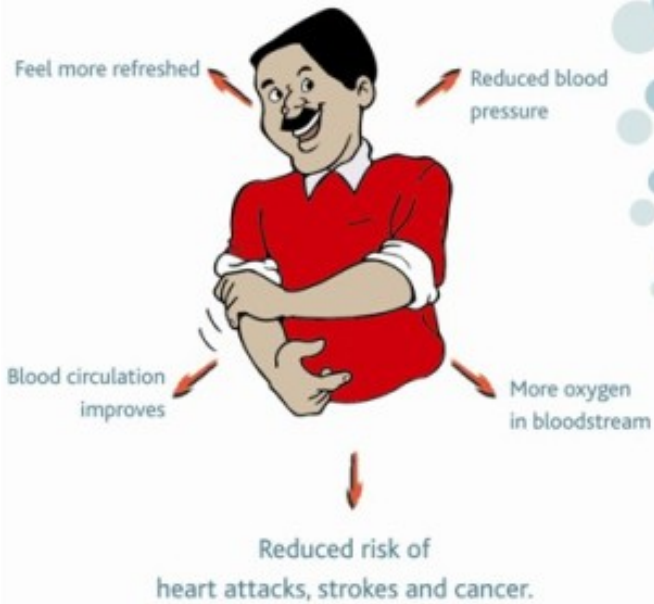


What are  
the benefits of  
quitting tobacco?

# TOBACCO CONSUMPTION



## QUITTING TOBACCO



- Quitting tobacco use is one of the most important steps one can take to protect one's health.
- The various benefits of quitting tobacco include:
  - One feels less tired and more refreshed
  - There is more oxygen in bloodstream
  - Blood circulation will improve
  - Reduced blood pressure
  - Reduced risk of heart attacks, strokes and cancer.
- In addition, the sense of taste and smell will improve and the breath becomes fresh.

# TOBACCO CONSUMPTION

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What are the  
ill effects of  
alcohol consumption?



# ALCOHOL CONSUMPTION

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Alcohol consumption increases:

- Risk of road accidents
- Anxiety and depression
- Cancers
- Damage to the brain
- Birth defects
- Hepatitis and
- Cirrhosis

***AVOID ALCOHOL AND  
STAY HEALTHY***

## ALCOHOL CONSUMPTION

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**What is an  
unhealthy diet?**

## DIET INTAKE

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- An unhealthy diet is one which is high in calories, fat (especially saturated fats like ghee, butter, palm oil coconut oil, vanaspathi etc), salt and sugar and lacking in dietary fibre.
- There is usually
  - › Inadequate intake of vegetables and fruits
  - › Increased intake of fast foods
  - › Processed foods and carbonated sweetened soft drinks
  - › Larger portion sizes and
  - › Eating out more often
- All these have been associated with increase

## DIET INTAKE



Why is it important  
to increase  
vegetable and fruit  
intake?

## DIET INTAKE





- Vegetables and fruits make diet healthy, and balanced
- Vegetables and fruits contain essential nutrients, vitamins, dietary fibre and other bioactive compounds that help to prevent non-communicable diseases
- Daily intake of fresh vegetables and fruits helps to reduce the risk of non-communicable diseases

## DIET INTAKE



Are all fats unhealthy?  
What type of fat is recommended  
to reduce the risk of  
non-communicable diseases?

## DIET INTAKE



## WHICH FAT TO USE?



**USE**  
Monounsaturated fatty acids  
Groundnut oil  
Mustard oil  
Olive oil

**USE**  
Polyunsaturated fatty acids  
Sunflower oil  
Corn oil

**RESTRICT**  
Saturated fatty acids  
Ghee, butter  
Palm oil  
Vanaspathi  
Coconut oil

### COOKING TIPS FOR REDUCING FAT



Use very little cooking oil

Instead of frying foods, bake, boil, grill, steam, roast, or microwave them



Trim the fat and take skin off meat before cooking

Eat chicken instead of beef, pork or mutton



- No! Some fats are essential to our health
- Like carbohydrates and protein, fat is an important source of energy for the body
- Some fats are more likely to increase the risk of NCDs like diabetes, heart attack and stroke
- Saturated fats and trans-fats (hydrogenated fats such as vanaspathi, processed foods like soups, chips, cookies, pastries etc) increase the "bad" (LDL) cholesterol in the blood
- Unsaturated fats which include
  - i) Mono-unsaturated fats and
  - ii) Poly-unsaturated fatsare less harmful, but can still increase body weight.
- Thus one should restrict the use of saturated fats and use unsaturated fats in moderation.

## DIET INTAKE

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What is  
ideal body weight?



## BODY WEIGHT

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- Maintaining a healthy or ideal body weight can significantly reduce the risk for NCDs.
- Height and weight are generally considered good indicators of health status.
- Ideal body weight is the optimal weight based on age, height and sex and differs for each person.
- It is a weight at which one will feel fit and comfortable, healthy and energetic and have lower risk for NCDs.
- Maintaining ideal body weight can significantly reduce risk of
  - Heart disease
  - Stroke
  - Certain cancers
  - High blood cholesterol
  - Diabetes
  - Depression
  - High blood pressure

## BODY WEIGHT



How is Ideal Body weight calculated?

## BODY WEIGHT



Body Mass Index(BMI)

=

Body weight (in kilograms)

Height (in metres)<sup>2</sup>



BMI	< 18 Kg/m <sup>2</sup>	: Under weight
"	18-23 Kg/m <sup>2</sup>	: Ideal body weight
"	23.1- 25 Kg/m <sup>2</sup>	: Over weight
"	> 25 Kg/m <sup>2</sup>	: Obese



- Ideal weight can be estimated using the Body mass index (BMI), which is a measure of weight in relation to height.
- If BMI increases, it increases the risk of
  - › Diabetes
  - › High blood pressure
  - › Heart attacks
  - › Stroke and
  - › Certain Cancers

**Remember  
"Fatness" is not "Fitness"**

## BODY WEIGHT



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**Why is it important  
to know one's  
waist circumference?**



## WAIST CIRCUMFERENCE



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- Obese people are at especially high risk if they have a lot of fat around the waist and stomach area
- Waist circumference is an indirect measure of abdominal fat in the body
- Decreasing waist measurements can reduce the risk for
  - Diabetes
  - Heart disease
  - Hypertension
  - Stroke and
  - Abnormal cholesterol levels.

Waist circumference	
	Normal
Males	<90 cm [36 inches]
Females	<80 cm [32 inches]

## WAIST CIRCUMFERENCE

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How does inactivity increase the risk of non-communicable diseases?

## PHYSICAL ACTIVITY

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**Increase physical activity  
to decrease  
Non Communicable  
Diseases**



- Physical inactivity increases the risk of developing diabetes, some cancers, such as colon cancer and breast cancer, hypertension and obesity
- Physical activity also lowers the HDL ("good") cholesterol and increases the risk of heart disease and stroke.
- Physical activity lowers the risk of NCDs by:
  - Lowering blood sugar, blood pressure and serum lipids
  - Increasing oxygen levels in the body
  - Helping lose weight
  - Reducing stress
  - Strengthening the heart, muscles and bones
  - Improving blood circulation
  - Toning up muscles
- Thus regular physical activity prevents NCDs, and improves overall health.

# PHYSICAL ACTIVITY



**How can one  
increase physical activity  
and exercise in a  
smart and safe manner?**



# PHYSICAL ACTIVITY







- Physical activity does not mean only sports and athletics, but is any form of exercise or movement.
- Activities such as walking, playing games and household chores are all forms of physical activity.
- Try to get at least 30 minutes of physical activity at least five days a week. Don't push yourself too far, too fast.
- Start slowly and work up gradually. Take enough fluids.

**Practical tips:**

- › Choose a longer route while walking
- › Use the steps instead of elevator
- › Park the car or scooter farther away and walk
- › Play with children or take the dog for a walk
- › Involve in house-hold work eg. washing, cleaning, gardening
- › Convert holidays into exercise sessions rather than overeating and lazing around

## PHYSICAL ACTIVITY



What can one do  
to reduce one's risk  
of getting NCD?

## PREVENTION OF NCDs





One can reduce the risk of developing NCDs through the following ways:

- Be active
- Reduce fat intake
- Adopt healthy eating patterns
- Maintain ideal body weight
- Quit tobacco
- Avoid alcohol and
- Decrease stress

## PREVENTION OF NCDs



What is the importance  
of NCD risk factor  
surveillance?

## NCD SURVEILLANCE





NCD risk factor surveillance helps to:

- Obtain representative data on risk factors for NCDs
- Reduce the level of exposure of individuals/populations to common risk factors for NCDs
- Monitor current and ongoing trends in NCDs burden
- Reduce morbidity and premature mortality due to NCDs
- Plan and implement effective health policies

## NCD SURVEILLANCE

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