National Diabetes Reference Materials for Pre-diabetes and Type 2 Diabetes

Introductory Materials
Disclaimer
This publication is part of an initiative under the War on Diabetes. The diagrams are illustrative and used to demonstrate concepts.

This publication is not an exhaustive presentation on the subject matter. The publication will be reviewed if new evidence emerges that requires substantive changes to its content.
You Can **Lead a Fulfilling Life**
Even with Diabetes!
What is Diabetes

Diabetes is a condition where your body cannot manage sugar properly resulting in too much sugar in your blood.
Diabetes is a **Serious** yet **Common Condition** in Singapore!

1 in 3 Singaporeans are at risk of developing diabetes

1 in 9 Singaporeans have diabetes

1 in 3 individuals with diabetes do not know they have diabetes

Why have we gone to “War on Diabetes” in 2016?

1 in 3 individuals diagnosed with diabetes continue to have high blood sugar levels

2 in 3 individuals with newly diagnosed kidney failure have diabetes

1 in 3 individuals with diabetes have eye disease

About 4 amputations occur daily in individuals with diabetes
Diabetes can cause complications to the body.

- High Blood Sugar
- High Blood Pressure
- High Blood Cholesterol

Blood Vessel Damage

- Eye
  - Blindness
- Kidney
  - Kidney failure
- Foot
  - Amputation
- Heart
  - Heart attack
- Brain
  - Stroke
- Teeth
  - Tooth decay, gum disease
What Increases Your Risk of Developing Pre-diabetes and Diabetes?

**Family Member(s) Known to Have Diabetes**

**History of Diabetes During Pregnancy**

**40 Years of Age and Above**

**Body Mass Index (BMI) of 23.0 kg/m² or Higher**

**Inactive (Sedentary) Lifestyle**

**Unhealthy Eating Habits**
Blood Sugar Levels Increase When You Consume Foods Rich in Carbohydrates

Sugar and refined carbohydrates are digested and enter the bloodstream quickly.
When Possible, Consider Choosing Low GI Food Types

* Glycaemic index (GI)

- **High GI**
  - White rice, white bread, yellow noodle

- **Medium GI**
  - Chapati, white rice vermicelli, instant oats

- **Low GI**
  - Tang hoon, barley, brown rice vermicelli

Diagram compares one serving of each category.
High Blood Sugar Levels Cause the Pancreas (Insulin Factory) to Work Harder

Sugar and refined carbohydrates cause stress, fatigue and eventual damage to the pancreas.
Excess Sugar and Carbohydrates are Turned into Fat

Where is the fat located?

- Fat surrounding the organs and muscles
- Fat under the skin

Consequences of Excess Fat in the Body
- High blood sugar
- High blood pressure
- High blood cholesterol

Apple-shaped body
There May Be Excess Fat in the Body **Even When an Individual Appears Thin**

- Healthy
- Thin Outside, Fat Inside (TOFI)

**Fat Surrounding Organs**
Excess Internal Fat can Cause Damage

- Healthy Organs
- Healthy Insulin Level
- Converts Sugar to Energy Efficiently
- Healthy Blood Sugar Level

- Fatty Organs
- Pancreas Produces Less Insulin
- Converts Less Sugar to Energy
- Higher Blood Sugar Level
How Insulin Works in a Normal Person

1. **Insulin** allows sugar into the body cell.

2. **Sugar** is then used to **generate energy** and to maintain normal body functions.
Excess internal fat makes body cells less sensitive to insulin.

1. Body cells cannot sense insulin properly.
2. Pancreas has to produce more insulin to do the same work.
You Can **Lead a Fulfilling Life!**
What’s **Important to You?**
Manage Pre-diabetes and Diabetes Well

<table>
<thead>
<tr>
<th>Healthy Eating Habits</th>
<th>Blood Sugar (HbA1c)</th>
<th>Blood Pressure</th>
<th>Blood Cholesterol (LDL-chol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>140/80</td>
<td>160/100</td>
<td>3.4</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
</tbody>
</table>

- Blood Sugar (HbA1c): 7 (Healthy), 8 (Not Healthy)
- Blood Pressure: 140/80 (Healthy), 160/100 (Not Healthy)
- Blood Cholesterol (LDL-chol): 2.6 (Healthy), 3.4 (Not Healthy)
Eat foods that fill you up and turn to sugar slowly.

- Fibre rich foods
- Wholegrain starchy food
- Whole fruit
- Fruit juice
- Dried fruit
My Healthy Plate

Eat 1 serving of fruit between your meals
Other Food Choices

Meat and Alternatives
- Skinless Chicken
- Beans
- Lentils
- Egg
- Tofu
- Prawn, White fish, Salmon

Fruits
- Blueberries
- Guava
- Papaya
- Pear
- Grapes
- Apple

Other Food Choices
- Meat and Alternatives
- Fruits
Other Food Choices

Vegetables
- Broccoli
- Eggplant
- Capsicum
- Cabbage
- Kailan
- Mushrooms

Starchy Vegetables*
- Potato
- Sweet Potato
- Corn
- Pumpkin
- Peas
- Radish

*Starchy vegetables should be counted as carbohydrates
My First Small Step (Drinks)

Kopi

Condensed Milk
Water
Coffee

Kopi O Kosong

Water

Kopi C Siew Dai

Evaporated Milk
Water
Coffee

One Can, One Water

One Can
Sugary Drinks

Water

Water
Physical Activity
Benefits of Regular Physical Activity

- **Improves Productivity**: Improves attention, memory and creativity
- **Improves Overall Mood**: Reduces stress and improve mental health
- **Increases Health Benefits**: Reduces risk of colon cancer, heart diseases, diabetes and high blood pressure
- **Increases Fitness Levels**: Improves strength and stamina
Daily Habits for Physical Activity

Accumulate a few bouts of these activities throughout a day:

- **Take the Stairs** Instead of the Lift
- **Brisk Walk** for 10 Minutes
- **Walk Around** Every Hour
- **Take 10,000 Steps** Daily
- **Get Off One Bus Stop Earlier** and Walk
- **Exercise with Family and Friends**
An initiative under the War on Diabetes

LET'S BEAT DIABETES

Partners

Active Health
Association of Diabetes Educators Singapore

SINAGPORE NUTRITION AND DIETETICS ASSOCIATION

SINGAPORE PHYSIOTHERAPY association

TOUCH Diabetes Support

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