

## 甚麼是糖尿病？

糖尿病是一種慢性疾病。當胰臟所分泌的胰島素不足，或體內對胰島素產生抗拒，葡萄糖就不能進入細胞或儲藏為肝糖。當血糖增加，過多的糖份便會經由尿液排出體外，這就是糖尿病。

### 胰島素的功能

胰島素是胰臟所分泌的荷爾蒙，功能是将血糖運送到細胞變成熱量，而熱量便是我們日常生活所需的燃料，作為活動的動力。



## 糖尿病的種類

### 糖尿病一型 (胰島素倚賴型)

胰臟細胞受損不能製造胰島素或分泌不足

原因：遺傳、免疫系統問題或環境因素

### 糖尿病二型 (非胰島素倚賴型)

身體對胰島素產生抗拒而不能發揮功能，但體內胰島素分泌均屬正常或相對減少，大概95%糖尿病患者屬此型，多是中年以上人士

原因：遺傳、不良飲食習慣、肥胖體形或缺乏運動

## 糖尿病的高危人士

- **遺傳** — 家族中有糖尿病患者
- **肥胖** — 特別是脂肪積聚於腹部的人士
- **中年過後 / 高齡人士**
- **懷孕** — 曾產巨嬰或有妊娠性糖尿病的女士
- **缺乏運動**
- **都市化生活** — 不定時及不良飲食習慣、經常吸煙喝酒

## 糖尿病的常見病徵

- 經常口渴
- 多尿及小便頻密
- 食量大增但體重下降
- 容易疲倦
- 皮膚或陰部發癢(女性)或包皮發炎(男性)
- 視力模糊
- 傷口容易發炎及不易痊癒
- 足部麻痺、刺痛或無力

## 糖尿病可引致的併發症

- **眼** — 糖尿病眼、視網膜病變、白內障、青光眼
- **腦** — 中風
- **心** — 心臟病、心衰竭
- **腎** — 腎衰竭、腎病
- **足** — 神經病變、細菌感染、潰瘍，嚴重者甚至須截足

## 治療糖尿病的基本法則

1. 調節飲食
2. 控制體重
3. 適量運動
4. 藥物治療
5. 自我監察病情

### 1. 調節飲食

由營養師根據病人的病情和身體所需訂立一個均衡的飲食餐單



## 糖尿病的基本飲食原則

- 均衡飲食
- 避免太甜或太鹹食物
- 多吃高纖維食物
- 少吃高膽固醇及高脂肪食物
- 定時定量、少吃多餐
- 每天喝6至8杯水
- 避免煙酒



## 2. 控制體重

$$\text{體重指標} = \frac{\text{體重 (公斤)}}{\text{身高 (米)} \times \text{身高 (米)}}$$

根據衛生處界定，體重指標可分作以下類別：

類別	體重指標 (公斤/米 <sup>2</sup> )
過輕	< 18.5
正常水平	18.5-22.9
高危	≥ 23.0
過重	23.0-24.9
一級肥胖	25.0-29.9
二級肥胖	≥ 30.0

亞洲成年人參考數值

## 3. 適量運動

- 選擇適當的帶氧性運動
- 運動前作適量熱身及舒展
- 保持規律性，大約每星期3至4次
- 留意身體反應，帶備糖果作應付低血糖時需要。如有不適，應立刻終止所作的運動



## 4. 藥物治療

應按照醫生診症後的指示而服用

### 1. 口服糖尿病藥物

- A. 磺胺尿類 (Sulfonylureas) e.g. Gliclazide
- B. 雙胍類 (Bigunides) e.g. Metformin
- C. 糖苷酶抑制劑 (α - Glucosidase Inhibitors) e.g. Acarbose
- D. 格列酮 (Glitazones) 又稱胰島素增敏劑 e.g. Rosiglitazone
- E. 非磺基尿素類胰島素促分泌劑 (Glinides) e.g. Repaglinide

### 2. 胰島素注射劑

- 蛋白質的一種
- 類型：短效、中效和長效
- 作用：控制體內血糖水平



## 5. 自我監察病情

**血糖測試** — 每天餐前、餐後2小時及臨睡前作驗血糖測試。當血糖水平穩定後，測試可減至每星期1-2次。

**尿糖測試** — 準確性不及血糖測試，但當血糖濃度超過某一水平(10mmol/L)，糖分便會從尿液中排出。

**化驗測試 (HbA1C - 糖化血紅素)** — 應定期作HbA1C測試，因HbA1C測試能準確反映過往3個月的平均血糖值，從而知道血糖的控制是否合適。

# 糖尿病 DIABETES MELLITUS



## What is Diabetes Mellitus?

Diabetes Mellitus (or Diabetes) is a chronic disease. It is caused by insufficiency of pancreas-secreted insulin or malfunction of insulin in the control of blood glucose level. When the blood glucose cannot be converted into energy we need or stored in the liver, excess glucose accumulate in the blood will excreted in urine. This is called Diabetes Mellitus.

### Function of Insulin

Insulin is a hormone that is secreted by the pancreas. Its function is to facilitate the transport of glucose into cells to be converted into energy on which our body depends for the day-to-day activities.

## Type of Diabetes Mellitus

### Type I Diabetes Mellitus (Insulin-dependent diabetes mellitus)

The insulin producing cells of the pancreas are damaged and unable to produce insulin or produce insufficiently.

Caused by hereditary factors, immune system disorders or environmental factors.

### Type II Diabetes Mellitus (Non-insulin-dependent diabetes mellitus)

Malfunction of insulin and the body insulin level is normal or relatively low. About 95% of diabetes belongs to this type while most patients are at middle age.

Caused by hereditary factors, unhealthy eating habits, obesity or lack of physical activity.

## Risk Groups of Diabetes Mellitus

- **Hereditary Factors** – People who have family history of diabetes mellitus
- **Obesity** – People with abdominal fat deposit
- **Middle-aged or Elder People**
- **Pregnancy** – People who have given birth to heavy weight baby or suffered from diabetes during pregnancy
- **Lack of Exercises**
- **Urbanized Living Style** – Irregular and unhealthy eating habits, smoking and drinking.

## Common Symptoms

- Frequent thirsty
- Frequent urination and increased amount of urine excretion
- Increased appetite but decreased body weight
- Easy fatigue
- Skin or vulval itchiness or posthitis
- Blurred vision
- Wound with healing difficulty and infection problem
- Numbness, painful or weakness legs

## Complications Caused by Diabetes Mellitus

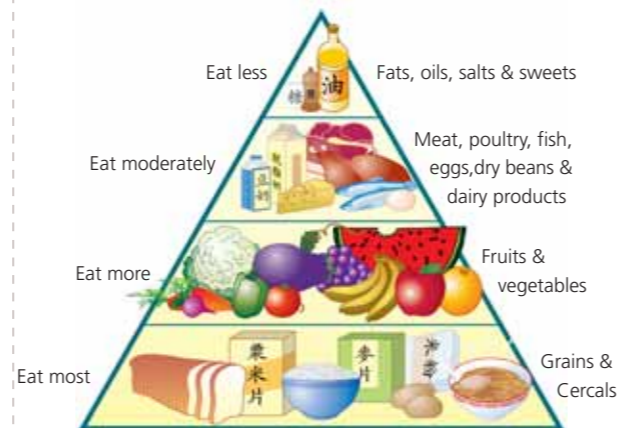
- **Eye** – Diabetes mellitus retinopathy, retinal detachment, cataract, and glaucoma
- **Brain** – Stroke
- **Heart** – Heart disease, heart failure
- **Kidney** – Renal failure, renal disease
- **Foot** – Neuropathic arthropathy, infection, ulceration, or even truncation for serious case

## Basic Rules for Diabetes Mellitus Treatment

1. Diet Control
2. Weight Management
3. Adequate Physical Activity
4. Medication Treatment
5. Self-Supervision

### 1. Diet Control

Based on the patient's condition and the body, dietitian suggests a balanced diet for the patient.



Everyday one should drink 6-8 glasses of fluid including water, tea or soup.

THE FOOD PYRAMID

### Basic Rules for Diabetic Patients' Diet

- Balance diet
- Avoid too sweet or too salty food
- Eat more high fiber food
- Eat less high cholesterol and high fat content food
- Regular diet and eat less per each meal
- Drink 6-8 fluid per day
- Avoid drinking and smoking

## 2. Weight Management

$$BMI = \frac{\text{Weight (Kilograms)}}{\text{Height (Meters)} \times \text{Height (Meters)}}$$

According to the definition given by Department of Health, BMI falls into one of the following categories:

Classification	BMI (kg/m <sup>2</sup> )
Underweight	< 18.5
Normal range	18.5-22.9
At risk	≥ 23.0
Overweight	23.0-24.9
Obese I	25.0-29.9
Obesity II	≥ 30.0

Reference for adult Asians

## 3. Adequate Physical Activity

- Choose adequate aerobics
- Warm-up or Stretch before perform the physical activity
- Exercise on regular basis, above 3-4 times per week
- Pay attention on physical reaction to the activity; prepare candy for low blood glucose situation. If discomfort persists, stop the performing physical activity immediately.



## 4. Medication Treatment

All diabetic treatments should follow doctor's instruction.

### 1. Oral intake medication

- |                              |                    |
|------------------------------|--------------------|
| A. Sulfonylureas             | e.g. Gliclazide    |
| B. Bigunides                 | e.g. Metformin     |
| C. α -Glucosidase Inhibitors | e.g. Acarbose      |
| D. Giltazones                | e.g. Rosiglitazone |
| E. Glinides                  | e.g. Repaglinide   |

### 2. Insulin Injection

- Type of protein
- Injection type: short, moderate and long term
- Function: control blood glucose level

## 5. Self-Supervision

**Blood Glucose Test** – Perform the test 2 hours before or after each meal or before sleep. When blood glucose level becomes stable, test can be done once to twice per week.

**Urine Glucose Test** – This test is not as accurate as Blood Glucose Test, but when the blood glucose increases to/over 10mmol/L, extra glucose will be excreted in urine.

**Laboratory Test (HbA1C)** – Regular HbA1C test is recommended because the HbA1C test result can reflect the average blood glucose value for the past 3 months so we can review the effectiveness of the glucose control treatment.