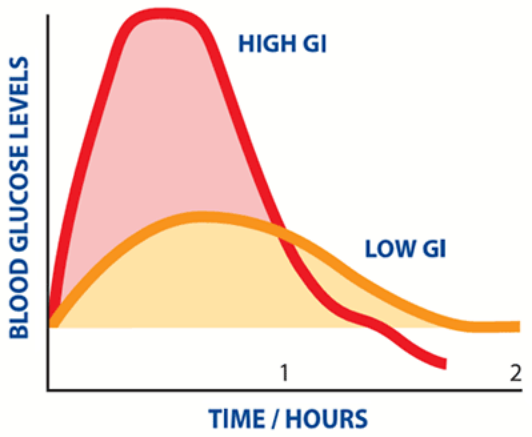
Diabetes diet & Healthy diet

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1st November, 2018

Talk Overview

- Risk of Diabetes
- Goals of Medical Nutrition Therapy
- Four pronged approach
- What is Glycemic Index (GI)?
  - Factors affecting GI
- GI vs Glycemic load (GL)
- High vs Medium vs Low GI Chart
- Alternative sweeteners
- Summary of dietary guideline for diabetes



The amount of carbohydrate in the reference and test food must be the same.

Risk of Diabetes

- Family History
- Age
- Overweight
- Lack of Exercise
- Lifestyle changes
- Disease of Pancreas
- Medications and other Endocrine problems
- History of GDM

Goals of Medical Nutrition Therapy

- Attain and maintain optimal metabolic outcomes
  - Blood Glucose
  - Lipid Profiles
  - Blood Pressure
- Prevent and treat the chronic complications of diabetes
- Improve health via healthy food choices and physical activity
- Address individual nutritional needs

Four-pronged Approach

- Assessment
- Goal setting
- Nutritional intervention
- Patient empowerment



Assessment

- Biochemical
  - FBS, HbA1c, lipid profile, renal and liver function
- Anthropometric
  - Body weight, height, body mass index (BMI), body fat %
- Intake Assessment
  - Type, amount of food intake, food habits, lifestyle, activities, pyschosocial issues
- Comprehension level
  - Literacy, education level, age



Body Mass Index (BMI)

Asian BMI	Category
<18.5	Underweight
18.5-22.9	Normal
23-24.9	Overweight
25-29.9	Obese
>30	Morbid obese

•World Health Organization (WHO, 2004) proposed normal BMI as 18.5-24.9 for General population. However, BMI between 23-24.9 with increased risk of chronic diseases

BMI and Desirable body weight calculation

BMI = body weight (kg) ÷ body height (m^2)

Ex: BMI = 60/1.6/1.6 = 23.4 kg/m^2

Desirable body weight (DBW or IBW)

= 1.6m x 1.6m x 18.5 (lower range) = 47.3

= 1.6m x 1.6m x 23.0 (upper range) = 58.9

IBW for an individual with 1.6m: 47 – 59kg

Nutritional Prescription

- Energy level
  - Sedentary DBW x 25-30
  - Moderate DBW x 30-35
  - Heavy DBW x 35-40
  - Obese DBW x 20-25
    - Or current energy intake minus 250-500kcal per day



Goal Setting

- Patient involvement
- Specific-target
- Promote positive changes
- Realistic

Nutritional Intervention

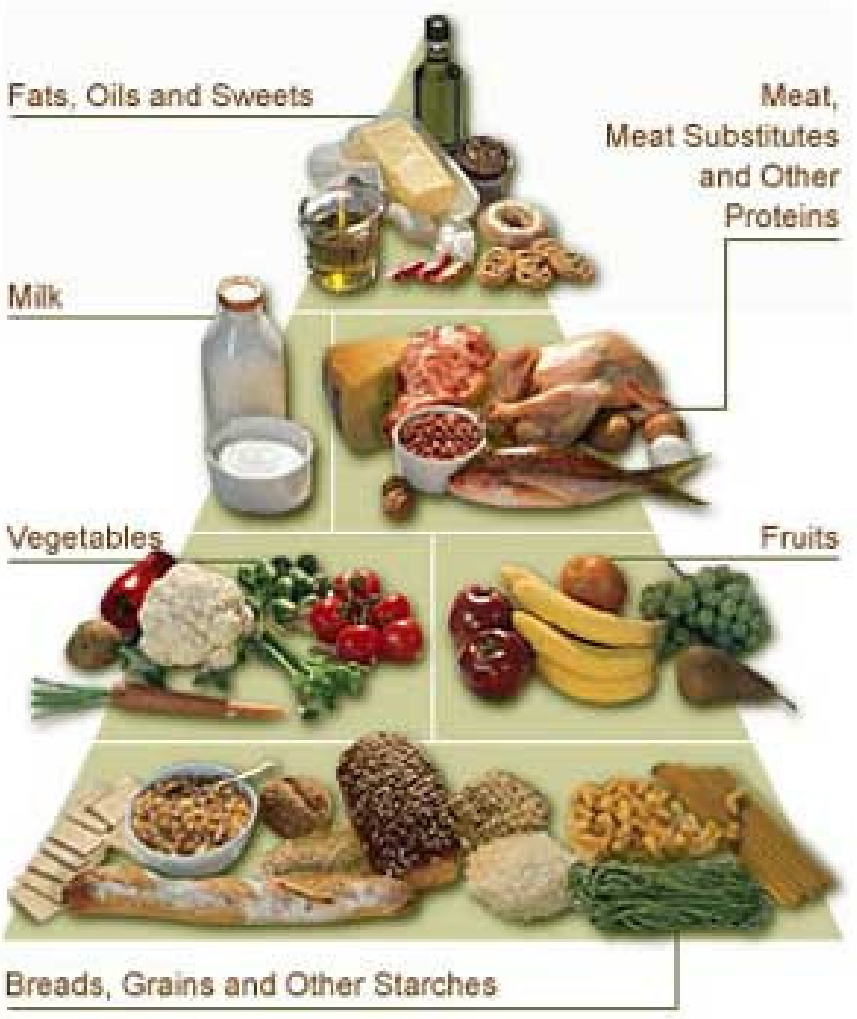
- Complex issues to consider:
  - Eating habit, socioeconomic status, working hours, lifestyle, education level, other medical problems or underlying complications etc
- Nutritional prescription
- Individualized meal plan formulation

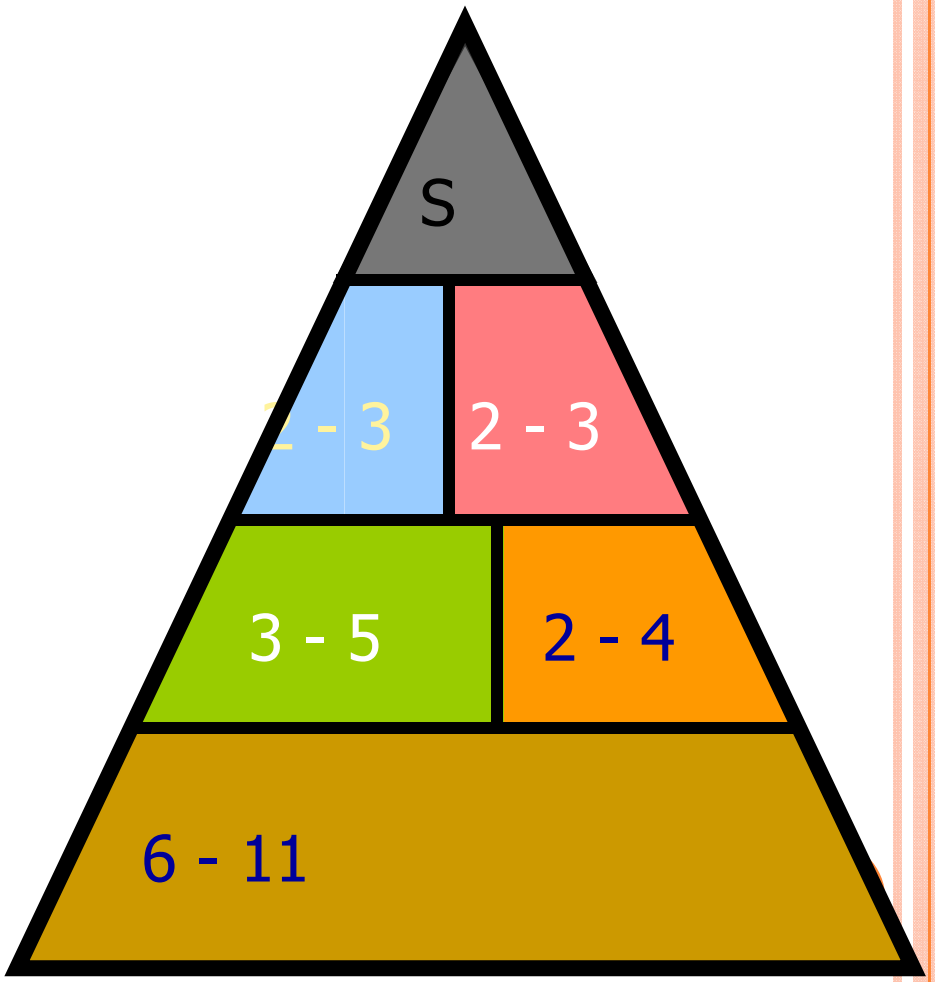


Diet Education

- 飲食金字塔 **Food Pyramid**
- 碳水化合物計算法
  Carbohydrate Counting
- 升糖指數 **Glycemic Index**

DIABETES FOOD PYRAMID





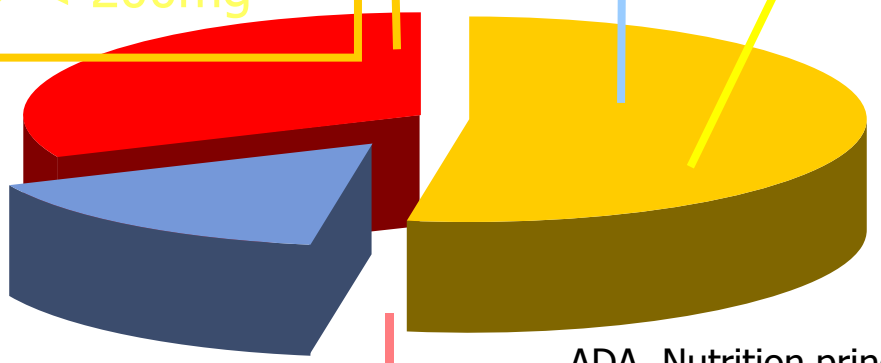
DM Nutrition at a Glance

CHO & Monounsaturated fats ⇨ 60 – 70%

Total Fat ⇨ 25 – 35 %
- •SFA ⇨ < 7%
- •PUFA ⇨ < 10%
- •MUFA ⇨ 10 – 15%
- •Minimize Trans Fat

•Cholesterol ⇨ <300 mg
•If LDL >2.6 ⇨ < 200mg

•CHO only ⇨ 45 – 60 %
- •> 130g
- •Sucrose ⇨ < 10%
- •Fiber ⇨ Encouraged



- Individualized meal plan
- 3-6 meals / day
- Weight Control

- Na^+ ⇨ < 2400 mg

Protein ⇨ 10 – 20 %
- •> 0.8 g/kg BW HQP
- •0.8 g/kg BW for CKD

ADA, Nutrition principles and recommendations in diabetes, Diabetes Care 27 (2004) S36–S46.

ADA, Standard of Medical Care, Diabetes Care 29 (2006) S4-S42

DNSG of the EASD, Recommendations for the nutritional management of patients with diabetes mellitus,Eur. J. Clin. Nutr. 54 (2000) 353–355.

Nutritional Prescription

- Carbohydrate (CHO): 45-60% of total energy

(Obese 35-40% with minimum 175g CHO per day)

  - Lower total amount CHO
  - Lower glycemic index (GI) / load (GL)
  - Nutrient dense CHO
  - Increase fibre
  - CHO distribution
  - Consistent intake

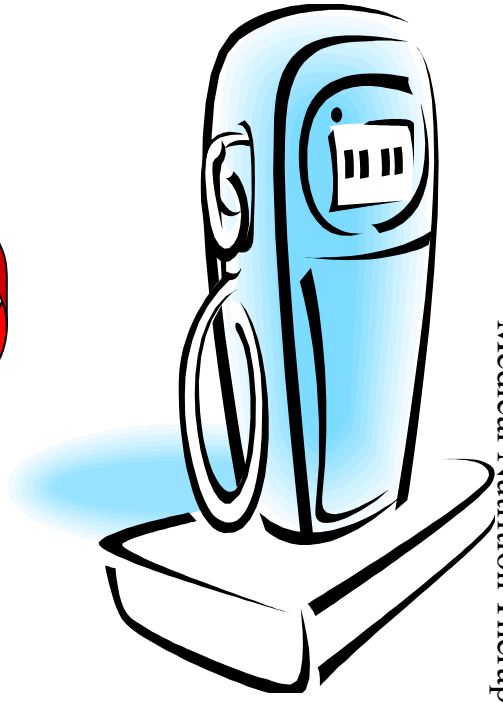
ADA Position statement

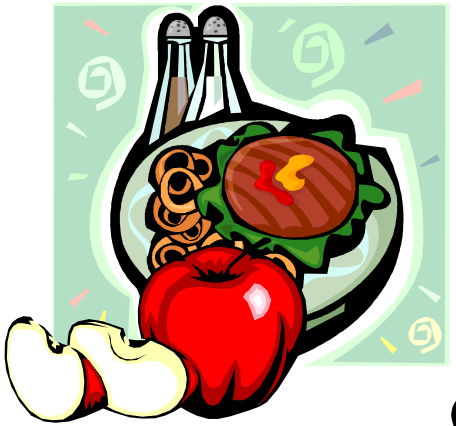


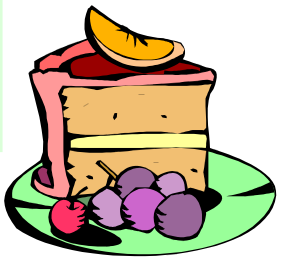
Nutrients

- Carbohydrate > > > > > 100%
- Fiber
- Protein
- Fat

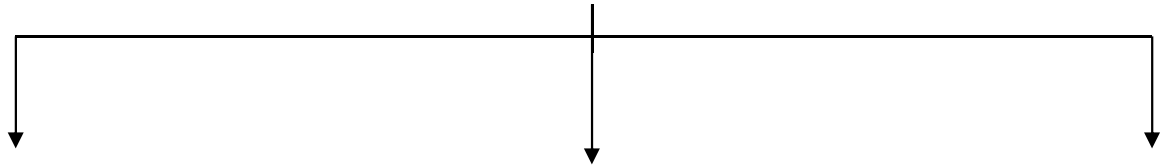
Blood Glucose







碳水化合物
Carbohydrate



糖類	澱粉質	纖維
Sugar	**Starch**	**Fibre**
蔗糖 Sucrose	飯 Rice	蔬菜 Vegetables
果糖 Fructose	麵包 Bread	瓜類 Melons
葡萄糖 Glucose	薯仔 Potatoes	菇類 Mushroom

Foods Containing CHO

- **Grains**
  - Rice, Noodles, Pastas, Congees
  - Breads, crackers
- **Fruits / Fruit Juices**
- **Starchy Vegetables**
  - Potatoes, Yams
  - Taro, pumpkins
  - Carrots, Corns
- **Sweets & Pastries**
  - **Cookies, cakes**
  - **Sweet soups**
  - **Ice cream, puddings**

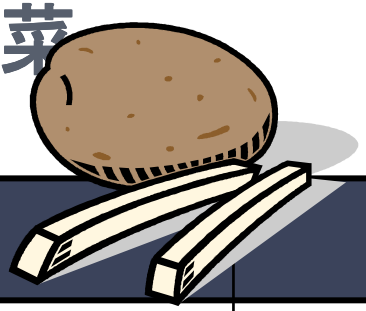
- **Milk & Yogurt**
  - Milk, yogurt
  - Calcium fortified soymilk
- **Dried beans**
  - Chestnuts
  - Beans, peas, lentils
  - Cellophane noodles
- **Soy products**
  - Dried Tofu
  - Soybeans

五穀類

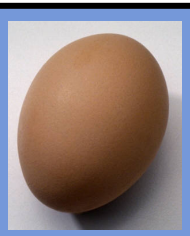
醣質	蛋白質	脂肪
10 克	1-2 克	0-1 克

食物	簡易份量
飯	1 滿湯匙或 1/5平中號碗
粥（杰）	1/2 碗
潮州粥	1/4 中號碗
米粉（熟）	1/4 碗
通粉（熟）	1/3 碗
麥包（嘉頓）	去薄邊半塊（大）
麥皮（生）	2 湯匙
消化餅	1 塊
高纖維麥餅乾（Provita）	3 塊

高澱粉質蔬菜



醣質 10 克	蛋白質 1 克	脂肪 0 克

食物	簡易份量
焓薯仔（去皮）	 1 個細雞蛋體積
蕃薯（生）黃肉	
芋頭（生）	
紅蘿蔔	  2 個細雞蛋體積
蕃瓜（生）	
馬蹄	4 粒去皮（大）
熟栗粒	3 平湯匙

豆類



醣質	蛋白質	脂肪
10 克	1 克	0 克

食物	簡易份量
鮮栗子（去殼）	2 粒（大）
紅/綠豆	2 滿湯匙（熟）
粉絲	半碗（濕）
青豆乾	2 平湯匙（熟）
青豆	4 平湯匙（熟）
黑豆	4 平湯匙（熟）
茄汁豆	4 平湯匙（熟）

奶類



醣質	蛋白質	脂肪
10 克	7 克	0-7 克

食物	簡易份量
全脂/ 低脂 / 脫脂奶粉	4 平湯匙
全脂/ 低脂 / 脫脂鮮奶	210 毫升
全脂淡奶 / 低脂淡奶	6 湯匙
純味酸乳酪	160 毫升
淡豆漿	210 毫升
低糖加鈣豆漿	200 毫升
豆奶粉	2 平湯匙

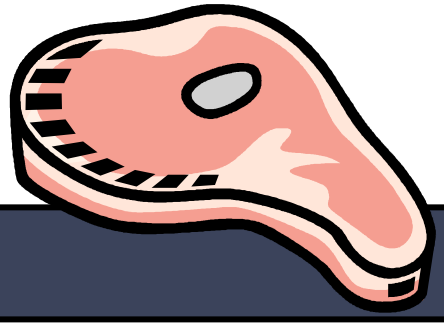
生果



醣質	蛋白質	脂肪
10 克	0 克	0 克

食物	簡易份量
萍果	1 個細
梨	1 個細
橙	1 個中型
桃	1 個中型
沙田柚	2 件
木瓜	1/4 個（每只14 cm長）
蕉	1/2 隻
提子	10 粒（細）
鮮橙汁	1/2 杯

肉類



醣質	蛋白質	脂肪
0 克	7 克	0-8 克

食物	簡易份量
新鮮或急凍 豬、牛、羊、雞、鴨、鵝 （生、淨肉）	40 克
雞蛋	A 級 1 隻
魚柳（生）	一件（6 x 5.5 x 1 cm）
蝦（生）	4 隻（7 cm）免殼
火腿	一片（16 x 9.5 cm）
龍蝦（淨肉）	40 克
芝士 / 低脂芝士（切片）	1 1/2 塊

CARBOHYDRATE COUNTING

To evenly distribute total CHO in diet.

Daily CHO Allowance
200 g

Brkfst	Lunch	PM	Dinner	Night
40-50 g	50-60 g	15-20g	50-60 g	10-15g

200 g total

Carbohydrate Distribution for Adults

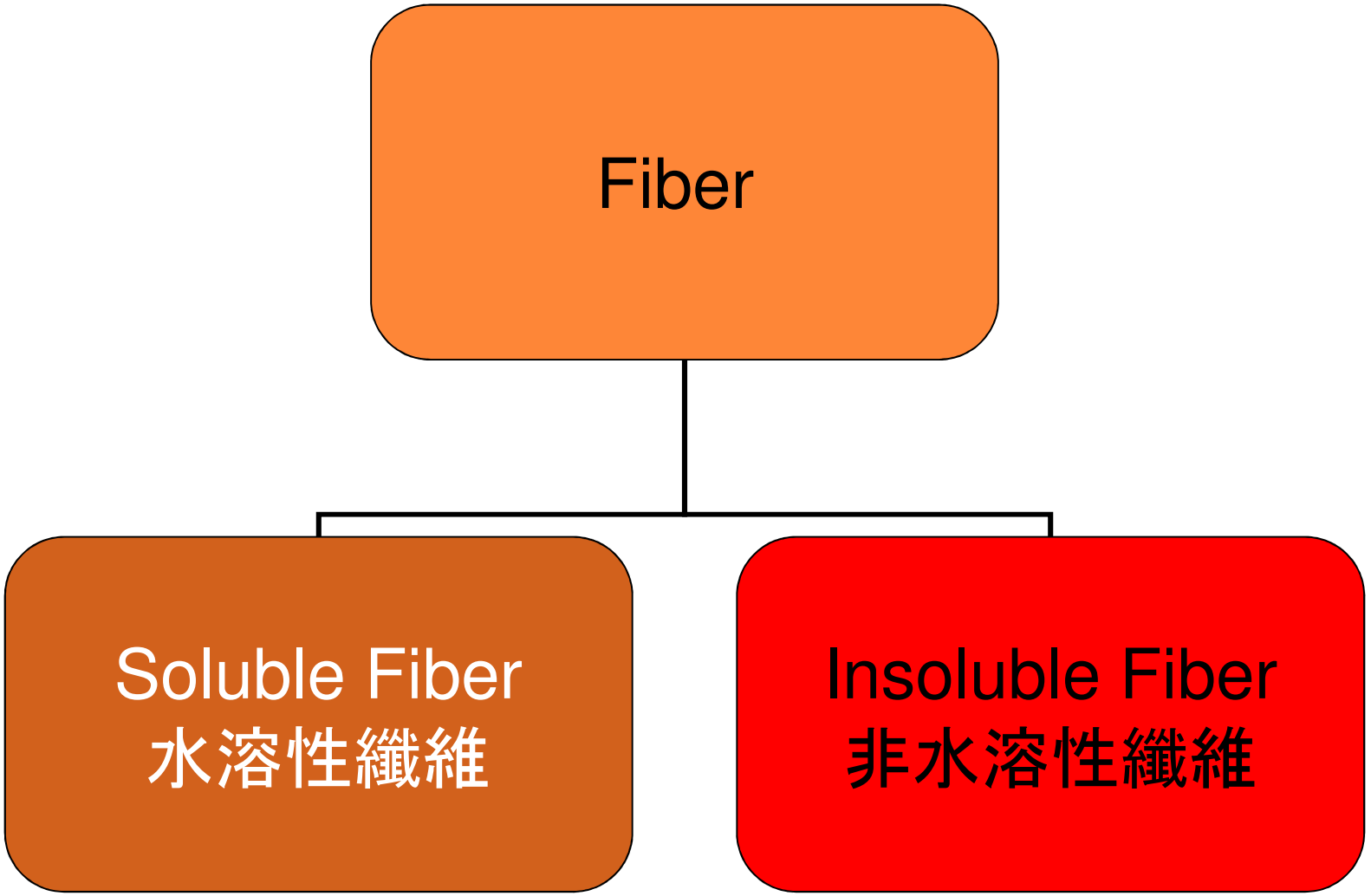
	Female (Sedentary)	Female (Moderate to Active) Male (Sedentary)	Male (Moderate to Active)
Main meals	40-50 g	50-60 g	60-70 g
Snack	10-15 g	15-20 g	20-25 g

Fibre (18-25g per day)





Fiber



Insoluble Fiber 非水溶性纖維

- Roughage!
- Aid in digestion
- The structure of plant cell walls
- Nature's broom
- Add bulk / softness to stool
- Prevent constipation, hemorrhoids, diverticulosis
- Decrease transit time
- Decrease potentially harmful substances in food waste linger in the intestines

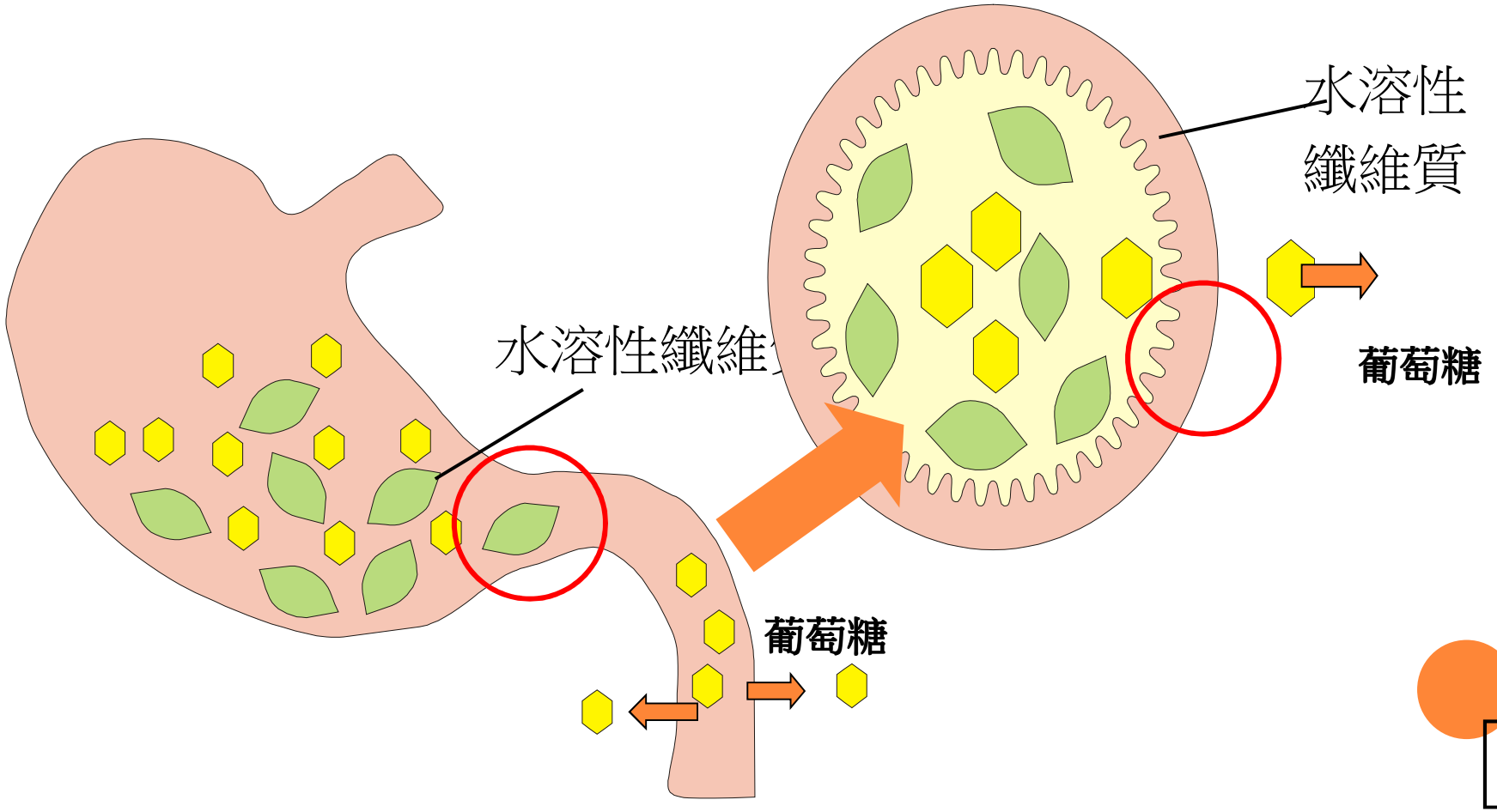
Soluble Fiber 水溶性纖維

- In soft liquid foods
- the fiber in oats and beans
- Form a gel consistency
- Helps to lower LDL cholesterol
- lower GI, helps to control
  - Blood sugar level
  - Triglyceride
  - Weight

K

水溶性纖維質

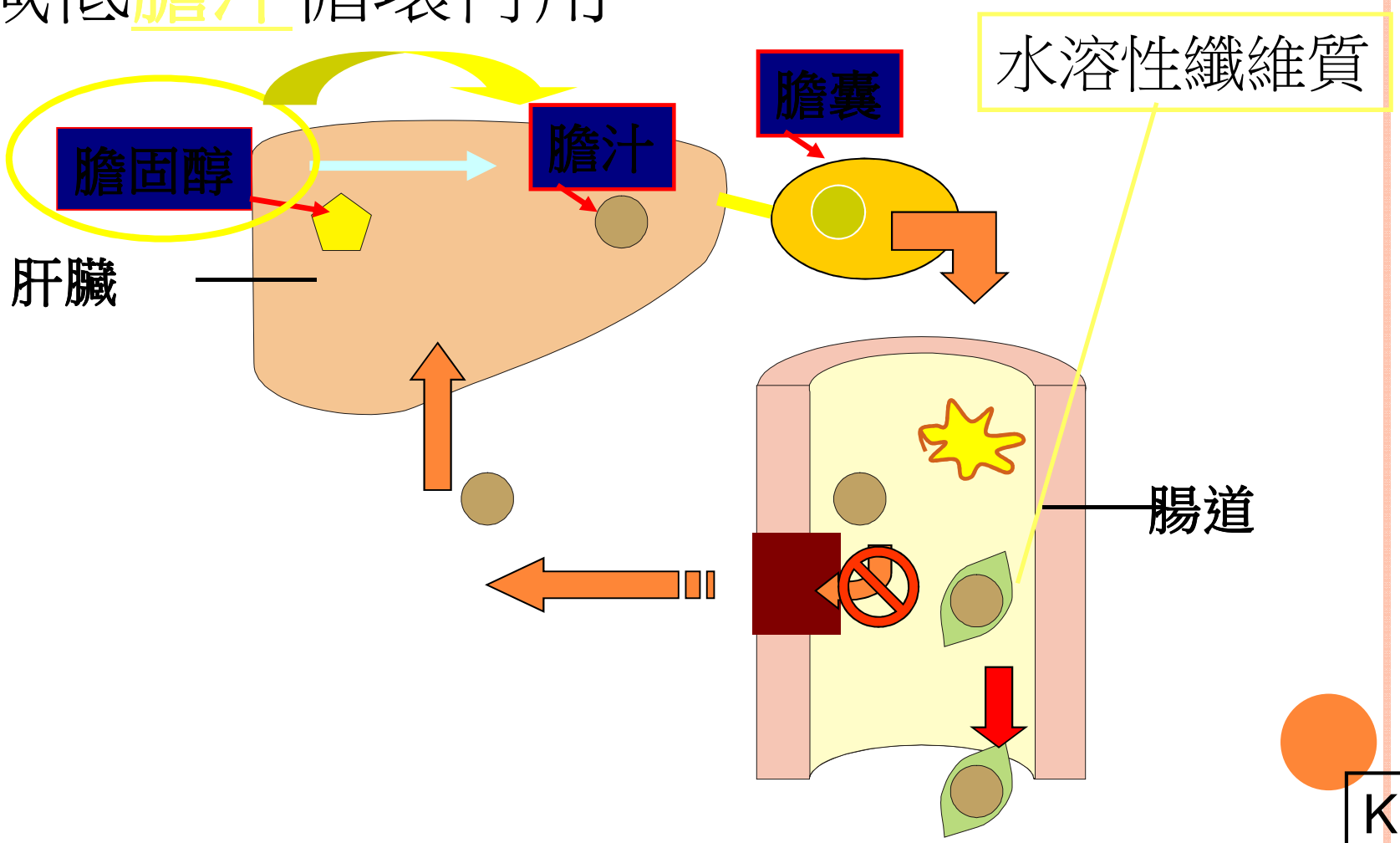
-減慢胃部掛空時間及葡萄糖吸收



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水溶性纖維質

-減低膽汁循環再用



Fiber

- Soluble Fiber
  - Oats (2.2g/0.75cup)
  - Purple passionfruit (6.5g/0.5cup)
  - Orange (1.8g/medium size)
  - Carrot (1.7g/0.5cup)
  - Psyllium seed husks (3.5g/tbsp)
  - Metamucil (3.4g/tbsp)
  - Tofu (2.8g/0.75cup)
  - Avocado (2.1g/0.5cup)
  - Kidney beans (2g/0.5cup)
  - Sweet potato (1.8g/0.5cup)
  - Asparagus (1.7g/0.5cup)
  - Flaxseeds (2.2g/tbsp)
  - Dried figs (1.9g/0.25cup)
- Insoluble Fiber
  - All bran cereal (7.2g/0.3cup
  - Wheat bran (11.3g/0.5cup)
  - Shredded wheat (4.5g/cup)
  - Green pea (3g/0.5cup)
  - Okra (3.1g/0.5cup)
  - Flaxseeds (2.2g/tbsp)
  - Kidney beans (5.9 g/0.5cup)
  - Lentils (4.6 g/0.5cup)

Proteins 蛋白質

- Made of amino acids
- Build, repair and maintain your body tissues
- Provide energy when CHO and fats are short in supply
- Nonessential amino acids vs. essential amino acids
- 4 kcal / gram

K

Proteins 蛋白質

動物性 vs 植物性

我們從哪些食物可以吸收蛋白質呢？

蛋白質分為動物性及植物性，動物性來源例如豬、牛、雞、羊、魚、奶、蛋等，一般都有齊八種人體必需氨基酸；植物性蛋白質如豆類、果仁類、五穀類，雖然未必有齊八種人體必需氨基酸，但由於含纖維及維他命，而且沒有動物性脂肪，故從植物中吸收蛋白質亦是一個好方法。



◀▲肉類和植物都會有蛋白質，均衡地攝取最健康。

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Amino Acids

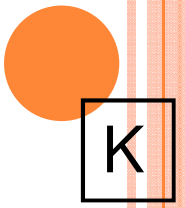
- Essential AA
  1. Phenylalanine
  2. Valine
  3. Threonine
  4. Tryptophan
  5. Isoleucine
  6. Methionine
  7. Leucine
  8. Lysine

- Conditionally Essential AA
  1. Arginine
  2. Cysteine
  3. Glycine
  4. Glutamine
  5. Histidine
  6. Proline
  7. Serine
  8. Tyrosine



Protein Needs

- Adult: 0.8-1.0 g / kg body weight
  - Male: 56 g / Female: 46 g
  - ~ 10- 20% total kcal
- Pregnancy + 10 g / day
- Renal
  - Predialysis 0.6 – 0.8 g / kg BW
  - Hemodialysis 1.1-1.4 g / kg BW
  - Peritoneal dialysis 1.2-1.5 g / kg BW
- Liver
  - Hepatitis 1-1.5 g / kg BW
  - Cirrhosis 1-1.8 g / kg BW
  - Encephalopathy 0.5-1.2 g / kg BW
- Cancer
  - General 1-1.2 g / kg BW
  - Cachexia 1.2-1.5 g / kg BW



一兩肉　7克蛋白質

包裝食物有食物營養標籤，上面會註明蛋白質含量，但我們從鮮肉中吸收蛋白質，怎計算當中的蛋白質含量呢？

肉類大約有20%為蛋白質，80%為水分，即100克肉大約有20克蛋白質。以此計算，男士每日可吃約300克肉類，女士可吃230克肉類。

另外，大家亦可以一兩肉（約一隻麻雀大小）含有7克蛋白質計算，即如果男士每日要52克蛋白質，即大約是七兩肉，女士則需六兩肉。

「肉類、魚和雞蛋，含有最多的蛋白質，粥、粉、麵、飯也含有少量蛋白質，但由於後者的蛋白質含量少，所以營養師一般不會將其計算在內。」



余思行提醒，雞蛋、奶類產品、豆類都含豐富蛋白質，故計算每日吸收量時，亦需將這些食物計算在內。

◀一份8安士牛扒所含蛋白質足夠男士每日所需。

蛋白質含量表

食物	份量	蛋白質(克)
牛奶	1杯(240毫升)	8
豆漿	1杯(240毫升)	8
豬、牛、羊	40克(1両)	7
雞、鴨、火雞	40克(1両)	7
魚	40克(1両)	7
蛋	1隻	7
黃豆	4大湯匙(熟)	7
白飯、糙米飯	1碗	5
麵包	1片	2



Desirable Blood Cholesterol Levels for Diabetes

	Desirable level
Total cholesterol	< 5.2 mmol/L
Triglycerides	<1.69 mmol/L
HDL-cholesterol ('Good')	>1.55 mmol/L
LDL-cholesterol ('BAD')	< 2.0 mmol/L
Total cholesterol/ HDL-cholesterol Ratio	< 5.0

Reference: NCEP ATPIII (2013) U.S.A.

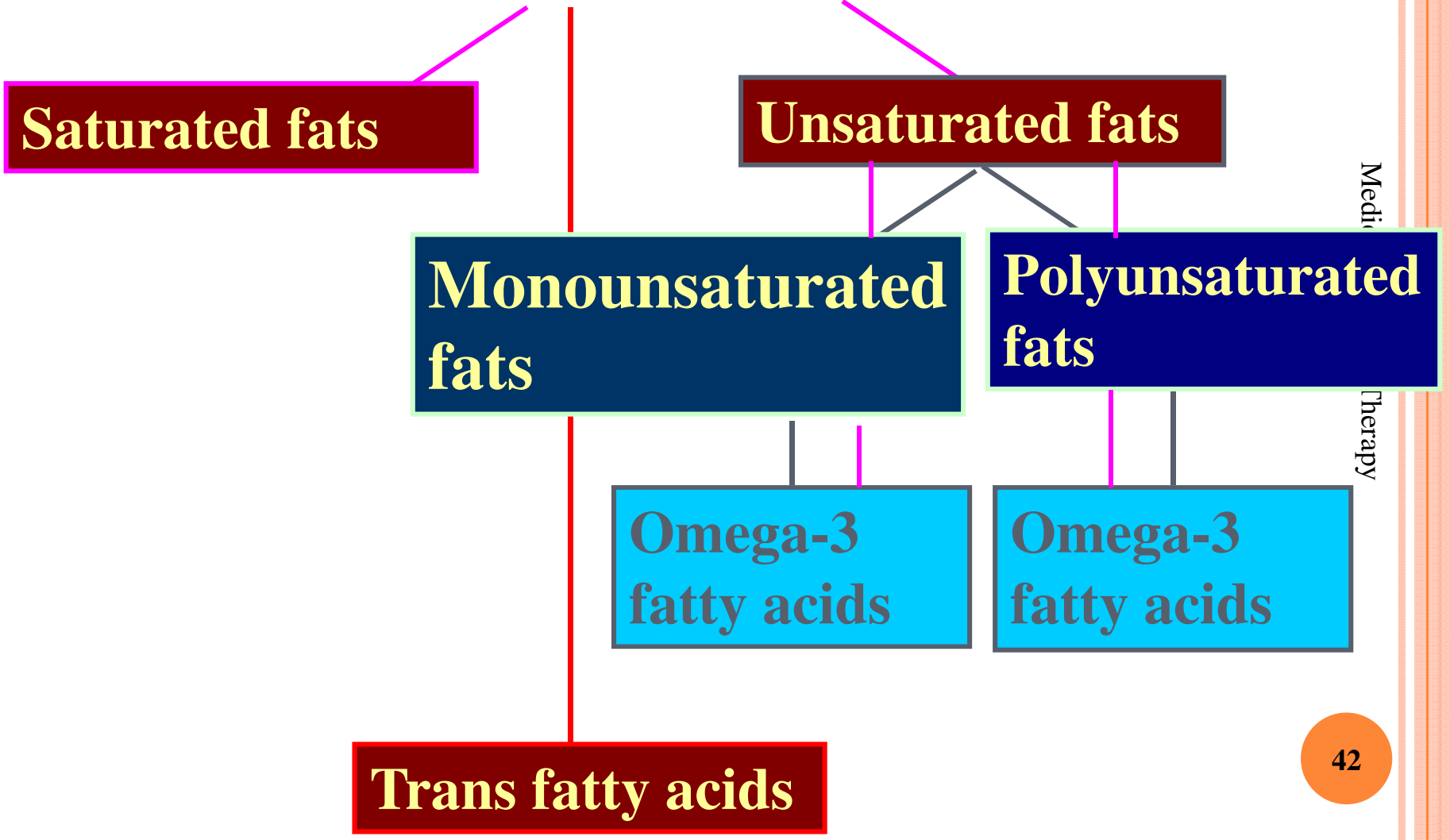
Dietary Advice

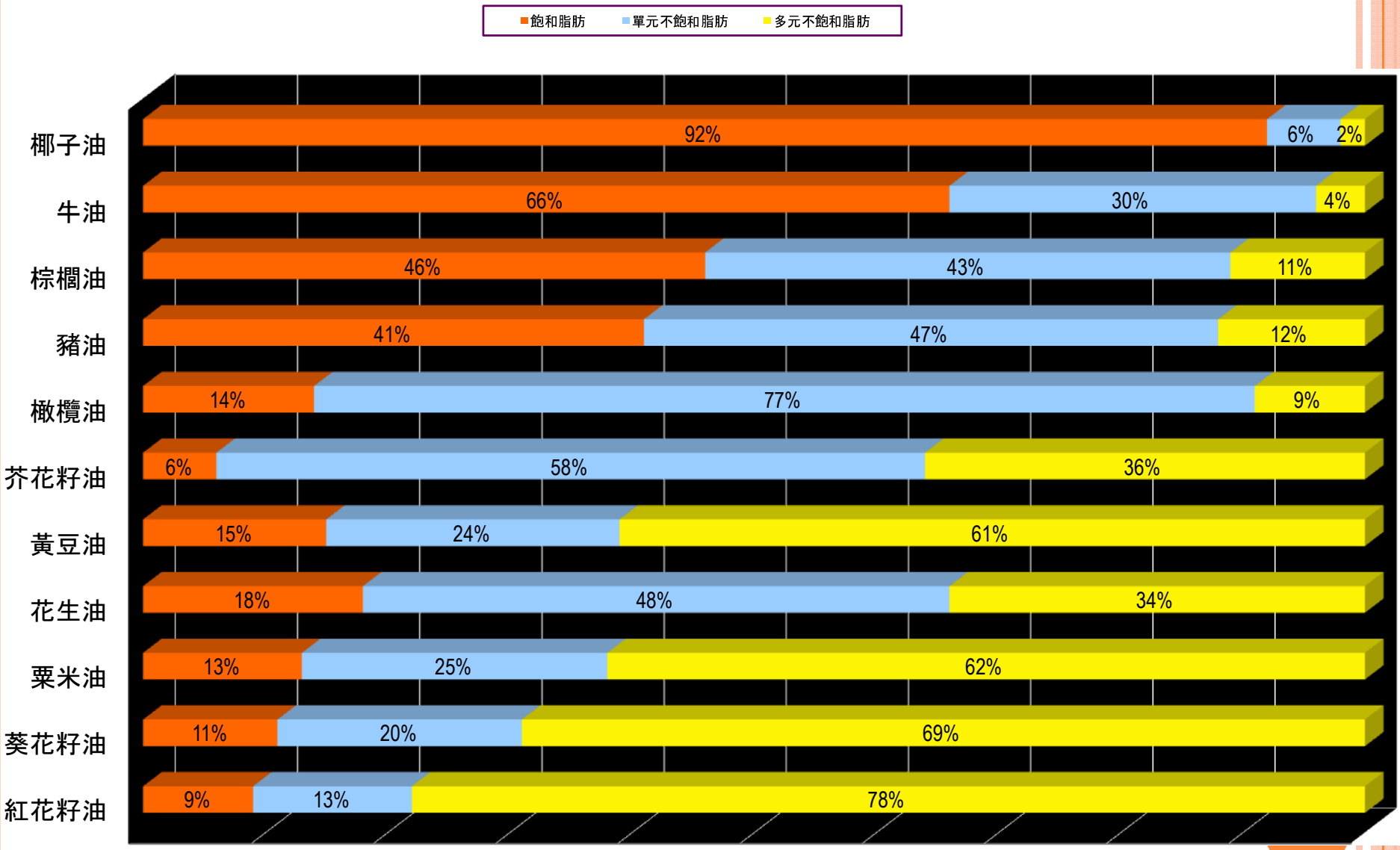
- Eat less fat, especially saturated fatty acids and trans fatty acid
- Limit high cholesterol foods
- Eat more high fiber foods, for examples vegetables, fruits, oatmeal, wholegrain products, soybean products and dried beans.
- Avoid excessive sugar intake
- Avoid excessive alcohol intake

Dietary Advice

- Increase fish intakes (especially oily fish) twice weekly, approximately 6 ounces per week
- Maintain regular exercise
- Achieve and maintain desirable body weight
- Follow the Healthy Food Pyramid to achieve a balanced eating habit

Type of Fatty Acids




飽和脂肪
單元不飽和脂肪
多元不飽和脂肪
椰子油
牛油
棕櫚油
豬油
橄欖油
芥花籽油
黃豆油
花生油
粟米油
葵花籽油
紅花籽油
92%
6%
2%
66%
30%
4%
46%
43%
11%
41%
47%
12%
14%
77%
9%
6%
58%
36%
15%
24%
61%
18%
48%
34%
13%
25%
62%
11%
20%
69%
9%
13%
78%

SATURATED FATS

- Increase LDL-cholesterol level
- Meat products, full cream milk and many processed foods that are made with lard, palm and coconut oil

POLYUNSATURATED FATS

- Lower LDL-cholesterol level
- Corn, sunflower, soybean oils, grapeseed oil

MONOUNSATURATED FATS

- Lower LDL-cholesterol
- Replacing saturated fats can further increase HDL-cholesterol
- Camillia, Olive, canola and peanut oils, almond, hazelnuts and avocado

TRANS FATS

- Hydrogenated fatty acids that increase LDL-cholesterol and reduce the HDL-cholesterol
- Deep-fried foods, hard margarine and cakes.

CHOLESTEROL

- Increases the blood cholesterol level
- fatty meats, animal organs, squid and octopus etc.

低升糖指數飲食

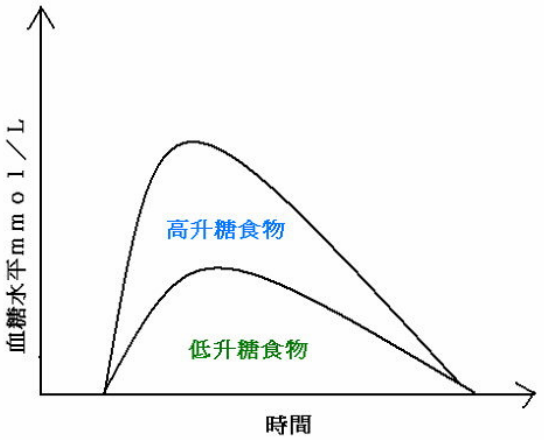
Low Glycemic Index Diet

What is GLYCEMIC INDEX (GI)?

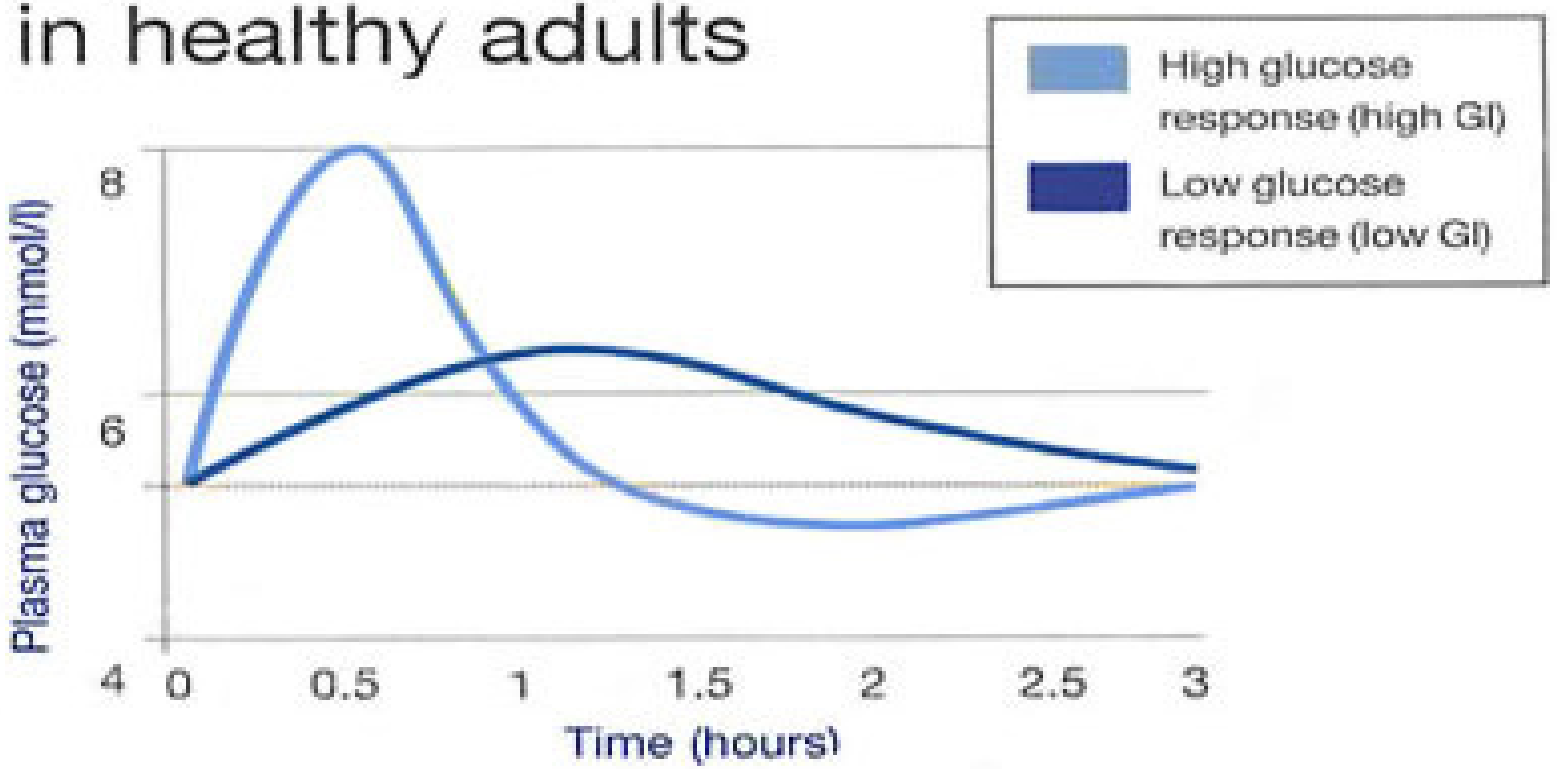
- GI is a measure of the effects of carbohydrates (CHO) on blood sugar levels
- GI is defined as the area under the 2-hr blood glucose response curve (AUC) following the ingestion of a fixed portion of CHO (usually 50g)

$$GI = \frac{\text{AUC of test foods}}{\text{AUC of standard}} \times 100$$

(either glucose or white bread)



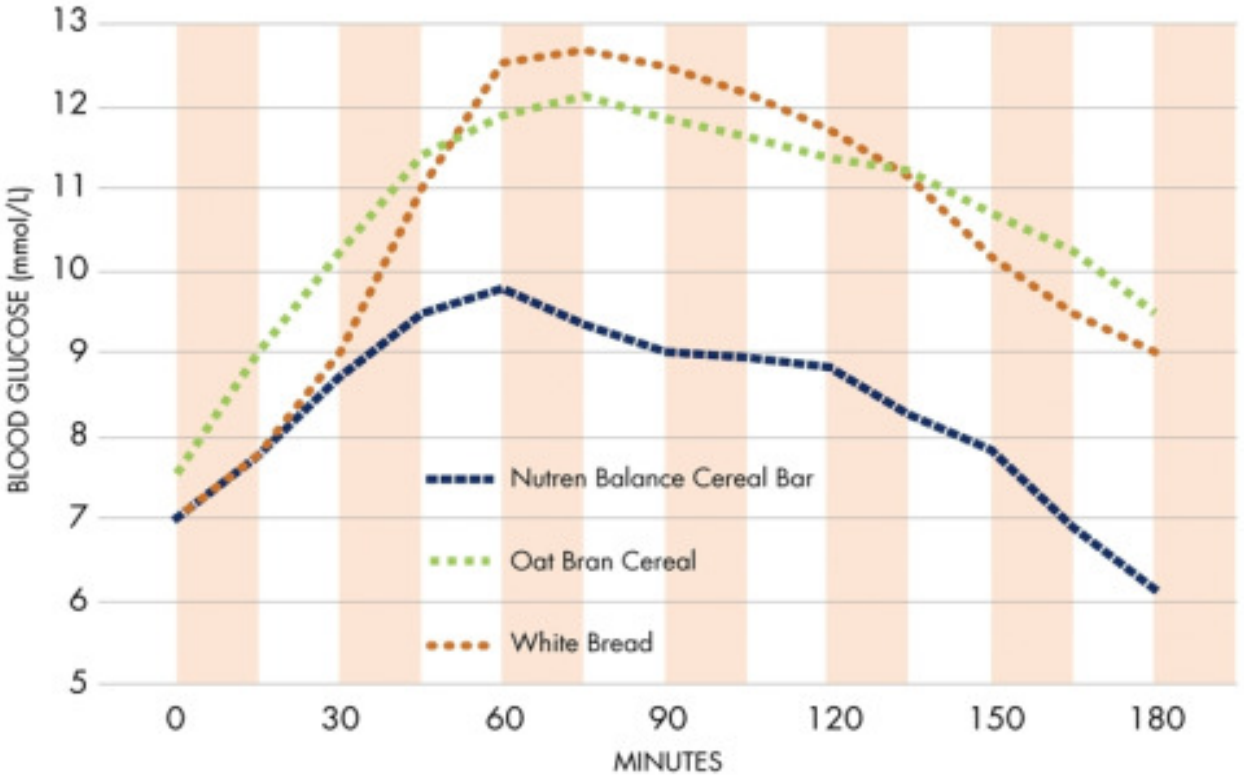
Glycemic response in healthy adults



Plasma glucose response (mmol/l) from a high versus a low GI food. The change in blood glucose concentration over time is expressed and calculated as the area under the curve (AUC) (Wolever et al., 1991).

GLYCEMIC INDEX (GI)

$$\frac{\text{BG response of 50 grams of “test food”}}{\text{BG response of 50 grams of Glucose}} \times 100\ \%$$



Low
< 55

Intermediate
55-70

High
>70

Medical Nutrition Therapy

Factors affecting the glycemic index of foods

- Factors are:
  - Type of starch
  - Cooking time
  - Food processing
  - Sugar content
  - Fat content
  - Protein content
  - Fibre content
  - pH of foods
  - Maturity of foods

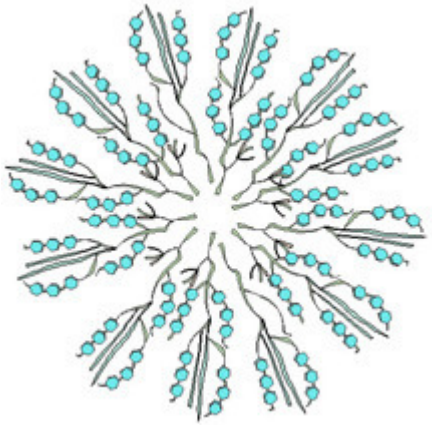


Type of starch

- Amylose (直鏈澱粉)
  - Glucose chain from 200 to 20000 units
  - Spiral structure
  - Difficult to digest
  - Low GI



- Amylopectin(支鏈澱粉)
  - Glucose chain from 1000 to 300000
  - Tree like structure
  - Easily digest (more surface area)
  - High GI



Cooking Time

- The longer the cooking time, the higher the GI
- The more water the food is absorbed while cooking, the more starch is released at the same time

Pasta cooked for 5 min → GI 34
Pasta cooked for 15 min → GI 40



White rice cooked for 1 min → GI 46
White rice cooked for 6 min → GI 87



Food Processing

- The more food processing is done, the higher the GI

Corn flakes	Instant Oats	Roll oats
GI = 86	GI = 83	GI = 42-50







Food Processing

- The more food processing on the grain, the higher the GI of bread

Pumpernickle	White bread
GI = 46	GI = 73





Sugar content

- Different sugar differer



果糖 fructose 19

蔗糖 sucrose 68



葡萄糖 glucose 100

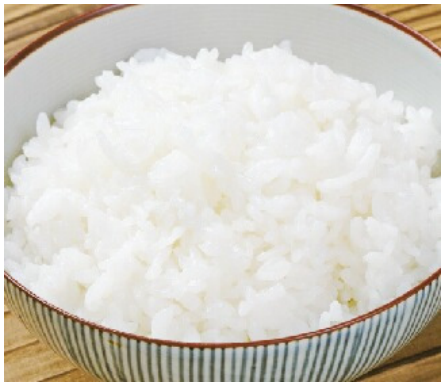
麥芽糖 maltose 105



Fat content

- The higher the fat content, the lower the GI
- Fat slows down digestion
- Fat is absolutely not healthy!!!

white rice白飯
GI = 89



Fried Rice 楊州炒飯
GI = 80

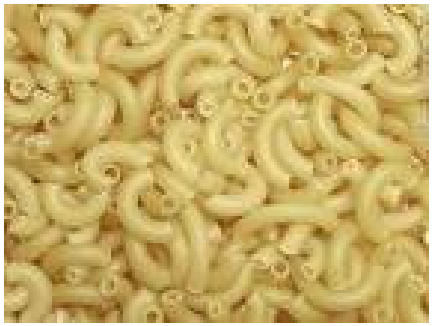


Protein content

- Protein content of food slow down gastric emptying and digestion, thus lower GI

Milk	Macaroni
GI = 11-46	GI = 56





Fibre content

- **The higher the dietary fibre the low the GI**

Soluble fibre

- Slow down digestion and absorption of sugar

- Lower GI
- Baked beans (150g) GI = 40



Insoluble fibre

- Insoluble fibre acts as shielding effect against enzymatic degradation

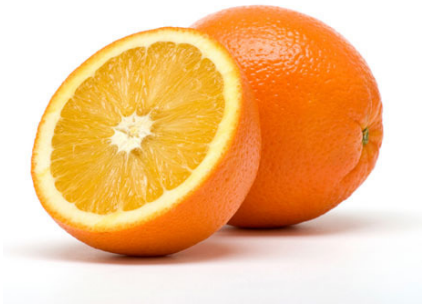
- Lower GI
- Corn (150g) GI = 52



pH of foods

- The lower the pH (more acidic), the lower the GI
  - Low pH slows down digestion

Orange (120g)
pH = 4.6
GI = 31-51



Watermelon (120g)
pH = 5.2 - 5.6
GI = 72-80



Maturity of foods

- **The maturer the fruit,** the higher the GI

Green banana (1)

GI = 30



Riped banana (1)

GI = 52



GLYCEMIC LOAD (GL) 昇糖負荷

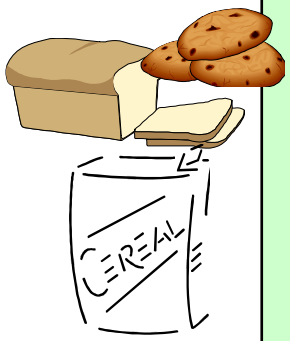
- Glycemic load (GL) is a ranking system for carbohydrate content in food portions based on their glycemic index (GI)
- GL is to predict blood glucose values of different types and amounts of food

$$GL = GI \times \frac{\text{the amount of available carbohydrate (g) in a 100g serving}}{100}$$

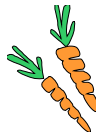
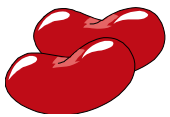
GL > 20 High; GL 11-19 Medium; GL < 10 Low

- For example instant oatmeal GI = 83; 100g contains 22g CHO

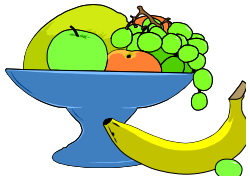
$$GL = 18 = 83 \times \frac{22}{100}$$

食物	低升糖指數 (≤ 55)	中升糖指數 (56 – 69)	高升糖指數 (≥ 70)
飯粉麵 	韓式薯粉絲 17 粉絲 26 意粉/通粉 45 杯麵 49 星州炒米 54 糙米/紫菜壽司 55	米粉 58 蕎麥麵 59 上海拉麵 61 烏冬 62	糯米 86-88 白米飯 72-83
麵包 餅乾 	吞拿魚包 46	比得包 56 漢堡包 61 消化餅 59 黑麥麵包 58 克力架餅 65 **快熟麥片/白米+糙米** 65 即食奶皇包 67 菠蘿包 65 牛角包 68 全麥麵包 69	白麵包75 英式鬆餅 77 吒呢拿威化餅 76 斑戟 80 厚片 多士 91 法包 93

Source: (1) 華人體育運動科學系研究.
(2) Foster-Powell K, Holt SHA, Brand-Miller JC. International table of glycemic index and glycemic load values AM J Clin Nutr. 2002; 76:5-76
(3) 中國食物成份表
(4) www.glycemicindex.com
(5) www.hkjda.org Hong Kong Juvenile Diabetes Association Newsletter ISSUE. 7

食物	低升糖指數 (≤ 55)	中升糖指數 (56 – 69)	高升糖指數 (≥ 70)
高澱粉 蔬菜 	芋頭 48 紅蘿蔔 淮山 51 粟米52-55	蕃薯 54 煲熟白薯 (連皮) 58 焗白薯(連皮) 62 煲熟新薯(連皮) 66 紅菜頭 64	薯蓉 73 炸薯條 107 焓南瓜 75
早餐 穀類	全麥維 All bran 44 瑞士營養麥 Alpen Muesli 55 燕麥糠 / 麩 50	大燕麥片早餐 69 Special K 62	維多麥 75 粟米片 74-79 可可脆米早餐 77 即食燕麥片 69-83
豆 	黃豆/腰豆/扁豆 40 綠豆/青豆/雞心豆 40 馬豆/眉豆/罐頭豆 40 豆腐 42		

Source: (1) 中大體育運動科學系研究.
(2) Foster-Powell K, Holt SHA, Brand-Miller JC. International table of glycemic index and glycemic load values AM J Clin Nutr. 2002; 76:5-76
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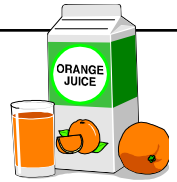
食物	低升糖指數 (≤ 55)	中升糖指數 (56 – 59)	高升糖指數 (≥ 70)
鮮果 	杏 34 梨 33 李子 28 布秣 24-53 青香蕉 31 橙 31-51 芒果 51 西柚 25 蘋果 34-39 熟香蕉 52 士多啤梨/桃 40 車厘子 22 奇異果 47 	木瓜56 提子 59 菠蘿66  皺皮瓜/哈蜜瓜67 	西瓜76
乾果	蘋果乾 29 杏脯乾 31	葡萄乾 64 無花果乾 61	

Source: (1) 中大體育運動科學系研究.
(2) Foster-Powell K, Holt SHA, Brand-Miller JC. International table of glycemic index and glycemic load values AM J Clin Nutr. 2002; 76:5-76
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食物	低升糖指數 (≤ 55)	中升糖指數 (56 – 59)	高升糖指數 (≥ 70)
奶類食物 和代用品 	低脂奶 46 豆奶 44 高鈣豆奶 39 乳酪 37-49 大豆乳酪 50		煉奶 82
飲料 	無糖罐裝蕃茄汁 31 西梅汁 43 無糖蘋果汁 44 無糖橙汁 / 西柚汁 50	小紅莓汁59 可樂 58 	佳得樂 78
糖水/甜品 	**蒟蒻** 24 龜苓膏 47 綠豆沙 54	月餅56 湯圓 61	**麻**糬 85 **雪糕** 87



Source: (1) 中大體育運動科學系研究
(2) Foster-Powell K, Holt SHA, Brand-Miller JC. International table of glycemic index and glycemic load values AM J Clin Nutr. 2002; 76:5-76
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食物	低升糖指數 (≤ 55)	中升糖指數 (56 – 59)	高升糖指數 (≥ 70)
零食 糖果 	花生朱古力 (M&M) 23 朱古力奶 27-37 朱古力 34-49 花生 13 爆谷 55 果麥條 46-50	薯片 60	米餅 82 啫喱豆 Jelly beans 80
糖 糖醇 	木糖醇 (Xylitol) 7 果糖 23 乳糖 46	蔗糖 65 	麥芽糖 105 葡萄糖 100 蜂蜜 103
點心 	蛋撻 45 春卷 50 叉燒酥 55	馬拉糕 61 即食奶皇包 67 糭 69 叉燒包 69	



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(2) Foster-Powell K, Holt SHA, Brand-Miller JC. International table of glycemic index and glycemic load values AM J Clin Nutr. 2002; 76:5-76
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Alternative Sweeteners 代糖

- 6 types of FDA approved alternative sweeteners

Name	Brand name	FDA approved years	Relative sweetness to sugar 比砂糖甜（倍）	Safety daily dose (mg/kg body weight) 每天安全攝取量（毫克/每公斤體重）	Equivalent to 12 fl.oz sugar free pop drink (cans) 相等12安士無糖汽水份量(罐)	Heat tolerance 耐熱程度
Saccharin 糖精	Sweet'N Low	1958	300	5	8	×
Acesulfmae K 醋磺內酯鉀	Equal	1988	200	15	40	✔
Sucralose 三氯蔗糖	Splenda	1999	600	15	68	✔
Aspartame 阿斯巴甜	Equal Pal Sweet	1981	200	50	187	✖
Stevia 甜菊	Equal KARORI	2008	250	4	17	✔
Luo han guo extract 羅漢果選粹	Luo han guo extract	2011	230	6.8	-	-

糖尿病患者的飲食原則

- 定時定量進食有助穩定血糖
- 少食多餐
- 按自己碳水化合物需要，定時定量進食碳水化合物
- 適量進食蔬果、乾豆類及燕麥等含豐富纖維的食品
- 多選低升糖指數食物
- 盡量避免進食含高糖份的食物

糖尿病患者的飲食原則

- 選擇植物油如茶花籽油、花生油、芥花籽油等，避免採用動物脂肪如豬油和牛油
- 適量進食蛋白質食物
- 注意正餐食物組合
- 檢測血糖
- 恆常運動

Q & A 發問時間

