

All About Insulin Resistance

關於胰島素抗性

Toolkit No. 5 健康手冊（五）

Insulin resistance is a condition that increases your chances of developing type 2 diabetes and heart disease. When you have insulin resistance, your body has problems responding to insulin. Eventually, your blood glucose (sugar) levels rise above normal. The good news is that cutting calories, adding physical activity to your daily routine, and losing weight can reverse insulin resistance and lessen your chances of getting type 2 diabetes and heart disease.

胰島素抗性是一種病症，會增加罹患第 2 型糖尿病和心臟病的風險。如果患有胰島素抗性，患者的身體便難以或無法對胰島素產生反應。最後，血液中葡萄糖（血糖）濃度就會超過正常範圍。所幸，只要減少熱量的攝取、增加每天例行的運動量以及減重，都可讓胰島素抗性好轉，降低罹患第 2 型糖尿病和心臟病的風險。

What does insulin do? 胰島素有什麼作用？

Insulin's job is to help the body use glucose for energy. It's a hormone, one of the chemicals your body makes to help trigger or regulate processes in the body. Insulin is made by the pancreas, an organ located behind the lower part of the stomach. Your pancreas usually makes just the right amount of insulin to match the food you eat.

胰島素的功能是幫助人體使用葡萄糖來產生能量。這是一種賀爾蒙，是由人體產生的化學物質之一，以幫助觸發或調節身體的機制。胰島素是由胰臟分泌的，這個器官位於胃部下半部的後方。胰臟通常會視所攝取的食物而定，分泌適量的胰島素。

Insulin acts as the doorman at the entrance to your cell. Food arrives at the door of a cell in the form of blood glucose. When your insulin is working effectively, it opens the door, just like a doorman. Then blood glucose enters the cell where it is used for energy.

胰島素就像是細胞入口的守門人。食物會以血糖的形式送達細胞的入口。當胰島素能正常作用時，就會開啟大門，擔任守門人的角色。接著血糖會進入細胞，用以產生能量。

When you have insulin resistance, your cells don't respond to insulin—they **resist** insulin's commands—and insulin can't do its job. Blood glucose still arrives at the cell door, but insulin can't work effectively and the door to the cell won't open. Your pancreas tries to keep blood glucose levels normal by making extra insulin. At first, the extra insulin helps. But after a while, even extra insulin can't open the cell doors and your blood glucose can rise. If your blood

glucose is high, you may have either pre-diabetes or even diabetes.

當患有胰島素抗性時，細胞對胰島素就沒有反應，換句話說，會**抗拒**胰島素的命令，而胰島素就無法發揮作用。血糖還是會送達細胞入口，但由於胰島素無法正常作用，進入細胞的大門就不會開啟。這時胰臟會分泌更多胰島素，試著維持正常的血糖濃度。一開始，額外的胰島素可能有用。但過了一段時間，即使有更多的胰島素也無法開啟細胞大門時，血糖濃度就可能上升。如果血糖濃度高，就可能引發前期糖尿病甚或糖尿病。



Physical activity, such as walking, can prevent or reverse insulin resistance.
像散步等適當運動可幫助預防胰島素抗性，或讓病情好轉。

What are the risk factors for insulin resistance?

胰島素抗性的危險因子為何？

You're more likely to have insulin resistance if you

如果有下列情況，罹患胰島素抗性的可能性愈高：

- are overweight
- are physically inactive
- are a woman with a waist measurement at your belly button over 35 inches or a man with a waist measure over 40 inches
- have a parent, brother, or sister with type 2 diabetes
- have polycystic ovary syndrome
- are over age 45
- have a blood pressure over 140/90 mmHg
- have low HDL (good) cholesterol levels (35 mg/dl or lower)
- have high levels of a fat called triglycerides in the blood (250 mg/dl or higher) All of these risk factors put you at risk for heart disease.

- 過重
- 沒有運動的習慣
- 肚臍腰圍超過 35 吋的女性，或超過 40 吋的男性
- 父母或兄弟姊妹有第 2 型糖尿病
- 有多囊性卵巢症候群
- 超過 45 歲
- 高血壓（超過 140/90 mmHg）
- 低 HDL（好的）高密度膽固醇濃度（35 mg/dl 或更低）
- 高三酸甘油脂（250 mg/dl 或更高）。這些危險因子都有可能導致罹患心臟病。

How is insulin resistance diagnosed? 如何診斷出是否有胰島素抗性？

At this time, there is no commonly used test to diagnose insulin resistance. People with insulin resistance usually have no symptoms. Your doctor can review your risk factors and then consider whether you're likely to be insulin-resistant. If you have a risk factor for insulin resistance, your doctor should check your fasting blood glucose levels to see

whether you have pre-diabetes or even diabetes.

目前並沒有普遍可行的檢測來診斷胰島素抗性。胰島素抗性患者通常沒有症狀。醫師可以先確認您的危險因子，再決定是否可能有胰島素抗性。如果您有胰島素抗性的危險因子，醫師應會檢查空腹血糖值，確定您是否有前期糖尿病甚或糖尿病。

How can I prevent or reverse insulin resistance?

如何預防胰島素抗性或使病情好轉？

You can cut calories and be physically active. If you do, it's more likely you'll lose weight. Remember, you don't have to lose a lot; even a loss of 10 pounds can help.

減少熱量攝取和多運動都是不錯的方法。這麼做還可以減輕體重。請注意，您並不需要減輕太多體重，可能 10 磅就足夠了。

Cut calories 減少熱量攝取

Place a check mark next to the steps you'd like to try for cutting down on calories every day. A dietitian can help you find other ways to cut calories and plan healthy meals.

下面有幾個步驟可幫助您減少每天的熱量攝取，請在想嘗試的步驟旁邊打勾。您可以詢問營養師，幫助您找出其他方法來減少熱量和制訂健康的飲食計劃。

- I'll cut back on my usual serving sizes.
- I'll order the smallest portion size when I'm eating out. Or I'll share an entree.
- I'll try calorie-free drinks or water instead of regular soft drinks and juice.
- I'll try low-fat versions of the foods I

usually eat. I'll check the labels to make sure the calories are reduced too.

- I'll choose baked, grilled, and steamed foods instead of fried.
- I'll eat more vegetables and whole grain foods.
- I'll ask for salad dressings and sauces "on the side" and then use as little as possible.
- I'll use nonstick pans or cooking sprays.
- I'll cut back on high-fat toppings, such as butter, margarine, sour cream, regular salad dressing, mayonnaise, and gravy. Instead, I'll season my food with barbecue sauce, salsa, lemon juice, or other low-fat choices.
- I'll stock my kitchen with low-calorie, low-fat snacks. I'll keep serving sizes small.
- Another way I'll try to cut calories is
- 減少平時的食量。
- 外食時都點最小份，或跟他人分享一份。
- 試著喝無熱量的飲料或白開水，而不是平常喝的汽水和果汁。
- 吃同樣的食物時，選擇低脂包裝。查看包裝標示，確定熱量確實減少。
- 選擇烘、烤、蒸類食物，不吃油炸食物。
- 多吃蔬菜和全穀類食物。
- 外食時要求沙拉醬和沾醬擺在盤子邊，盡量少沾用。
- 使用不沾鍋或噴霧油。
- 減少高脂醬料，例如奶油、黃油、酸乳酪、一般沙拉醬、美奶滋及滷汁。而改加烤肉醬、莎莎醬、檸檬汁或其他低脂醬料。
- 在廚房存放些低熱量和低脂點心。減少食物的份量。
- 其他用來減少熱量攝取的方法： _____

Be physically active

多運動

Place a check mark next to the ways you'll try to add physical activity to your routine.

下面有幾個方法可幫助您增加每天的運動量，請在想嘗試的方法旁邊打勾。

- I'll take the stairs instead of the elevator.
- I'll walk around while I talk on the phone.
- I'll find an activity I enjoy, such as dancing, gardening, or playing with the kids.
- I'll be active around the house by working in the garden and washing the car.
- I'll get up to change the TV channel.
- I'll take the dog for a walk.
- I'll park at the far end of the shopping center lot and walk to the store.
- At the grocery store, I'll walk down every aisle.
- I'll take a walk every day after lunch, working up to 30 minutes of brisk walking, 5 days a week. Or I'll split the 30 minutes into two or three walks.
- I'll try strength training by lifting light weights several times a week.
- Another way I'll try to add physical activity to my day is _____

- 不搭電梯，改走樓梯。
- 講電話時四處走動。
- 找到自己喜歡的活動，比方說跳舞、園藝或跟小孩玩。
- 盡可能找家事來做，例如整理花園或洗車。
- 起身轉電視頻道。
- 遛狗。
- 將車子停在購物中心停車場的最遠一

端，然後走路到店裡。

- 在雜貨店購物時，走遍每條通道。
- 每天午餐後散步，一週五天，每次快走 30 分鐘。或將 30 分鐘分成兩次或三次散步。
- 一週嘗試幾次舉起較輕的物品，訓練自己的耐力。
- 其他用來增加每天運動量的方法：

Does insulin resistance affect people who already have type 2 diabetes? 胰島素抗性會影響已有第 2 型糖尿病的患者嗎？

Yes, insulin resistance usually starts before type 2 diabetes is diagnosed and then continues, making it more difficult for you to reach your blood glucose targets. If you have type 2 diabetes, you can fight insulin resistance by cutting calories, being physically active, and losing weight if you need to. Talk with your health care team about ways to achieve your goals using meal planning, physical activity, and medications.

會的，胰島素抗性通常在第 2 型糖尿病診斷出來前就已經存在，而且也會繼續存在，讓患者更難以達到血糖目標值。如果您有第 2 型糖尿病，可以藉由減少熱量攝取、多運動及視需要減重等方式來治療胰島素抗性。請與醫護人員討論，瞭解如何以飲食計劃、運動和藥物來達到目標。



American Diabetes Association
1-800-DIABETES (342-2383) www.diabetes.org
©2004 by the American Diabetes Association, Inc. 03/04