



臺北醫學大學  
TAIPEI MEDICAL UNIVERSITY

# 107學年度健康促進學校輔導計畫 中央輔導委員與縣市教育局處共識會議

## 學校推動健康體位實證支持性環境策略

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謝榮鴻 教授

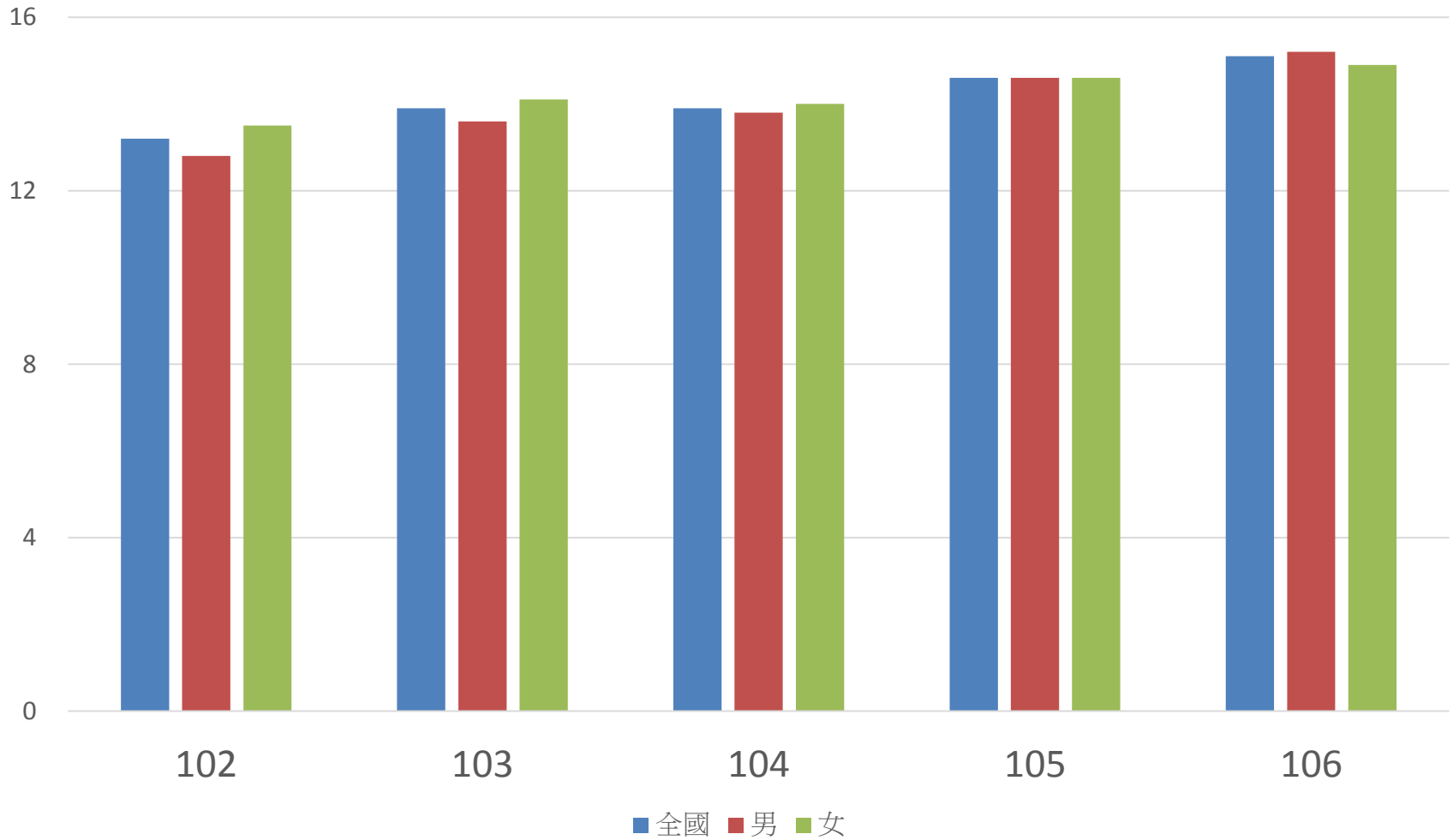
臺北醫學大學

2019/01/22

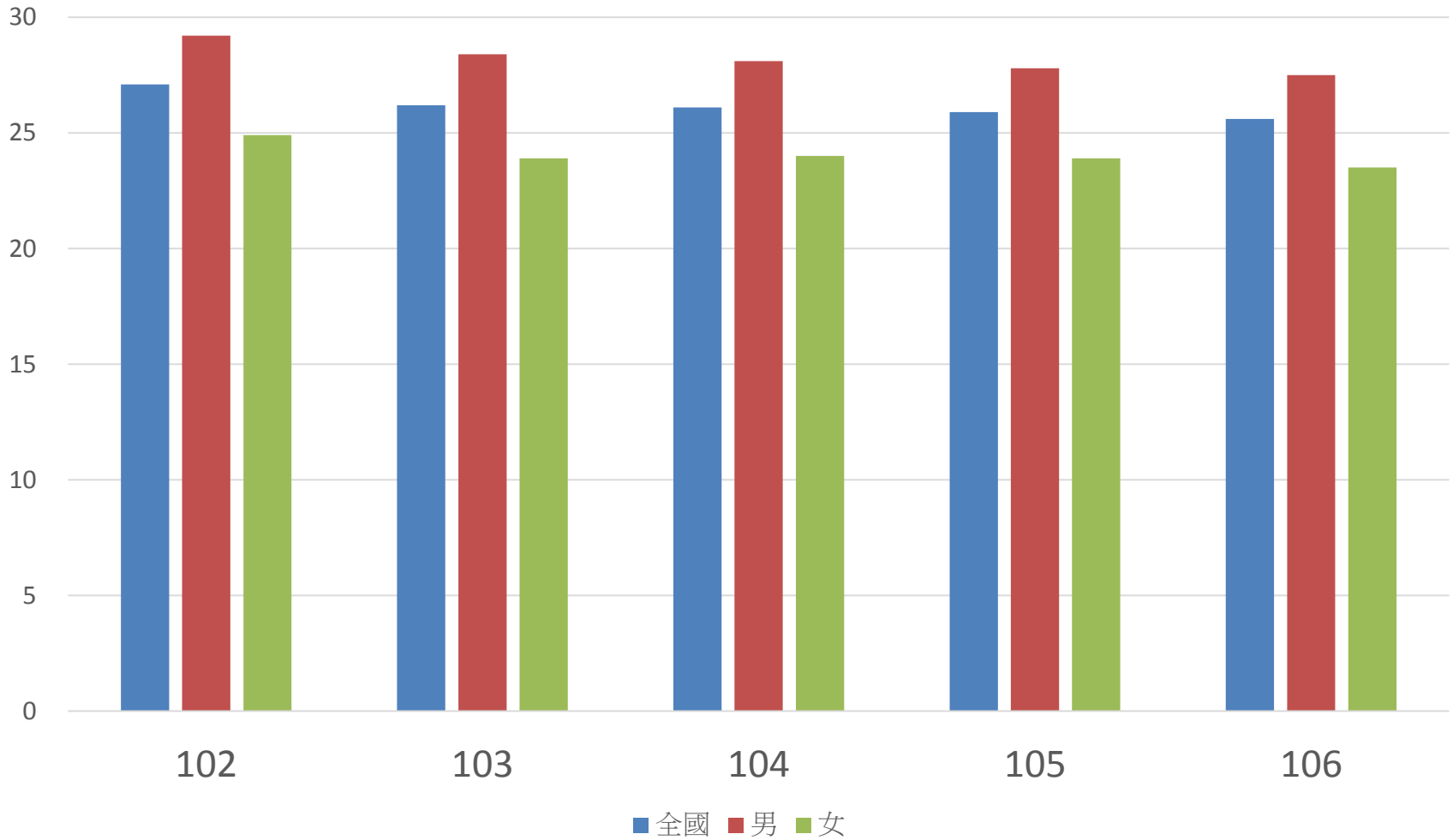
# 中小學生雙重體位不佳現況

身體質量指數	過輕	過重	肥胖
國小	<b>7.9%</b> ♂ 7.5% ♀ 8.4%	<b>13.2%</b> ♂ 14.5% ♀ 11.9%	<b>14.9%</b> ♂ 17.4% ♀ 12.2%
國中	<b>6.7%</b> ♂ 7.1% ♀ 6.2%	<b>12.7%</b> ♂ 13.3% ♀ 12.0%	<b>16.8%</b> ♂ 20.0% ♀ 13.2%

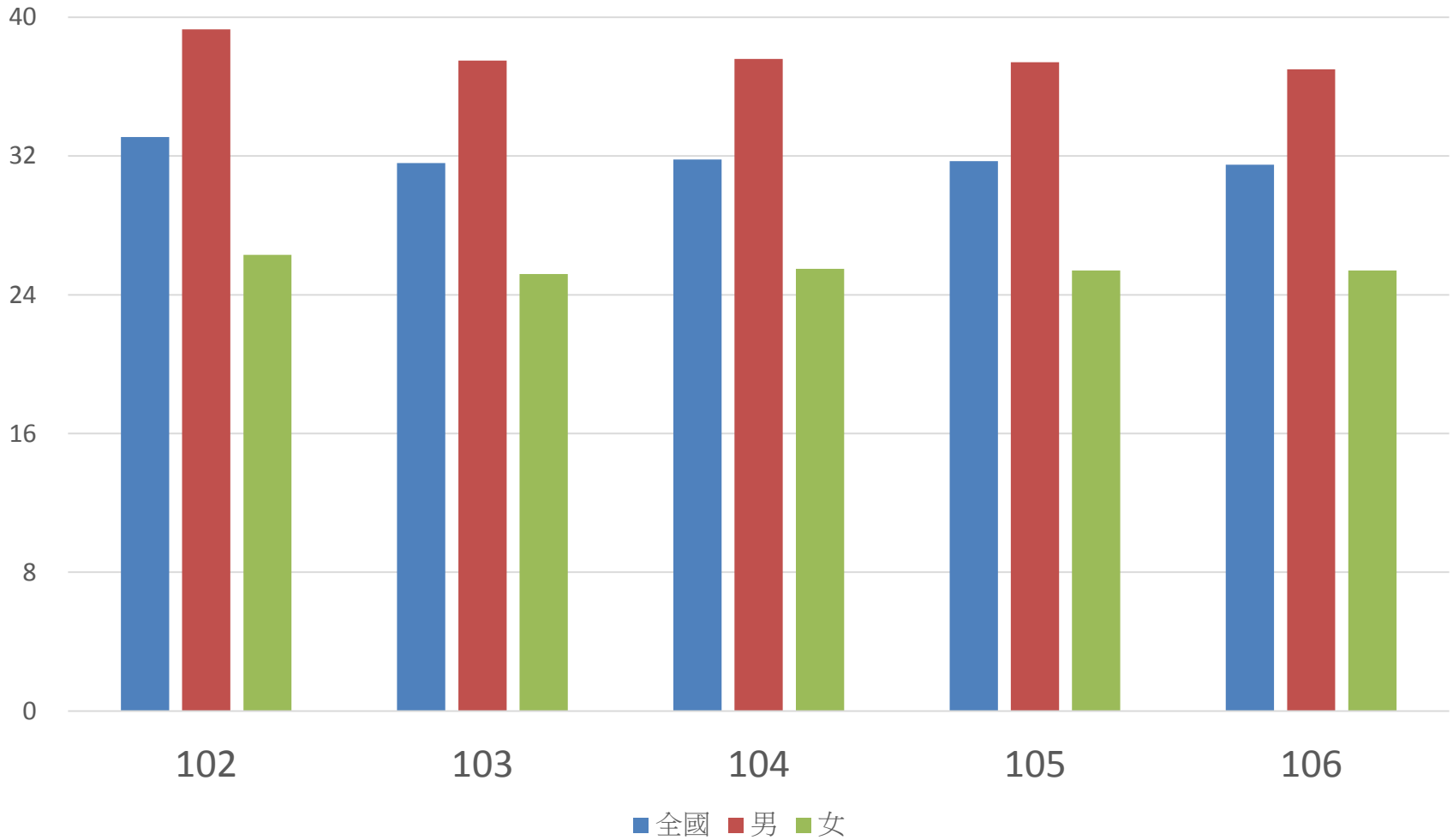
# 102-106學年國小及國中學生體位過輕比率



# 102-106學年國小及國中學生體位過重比率



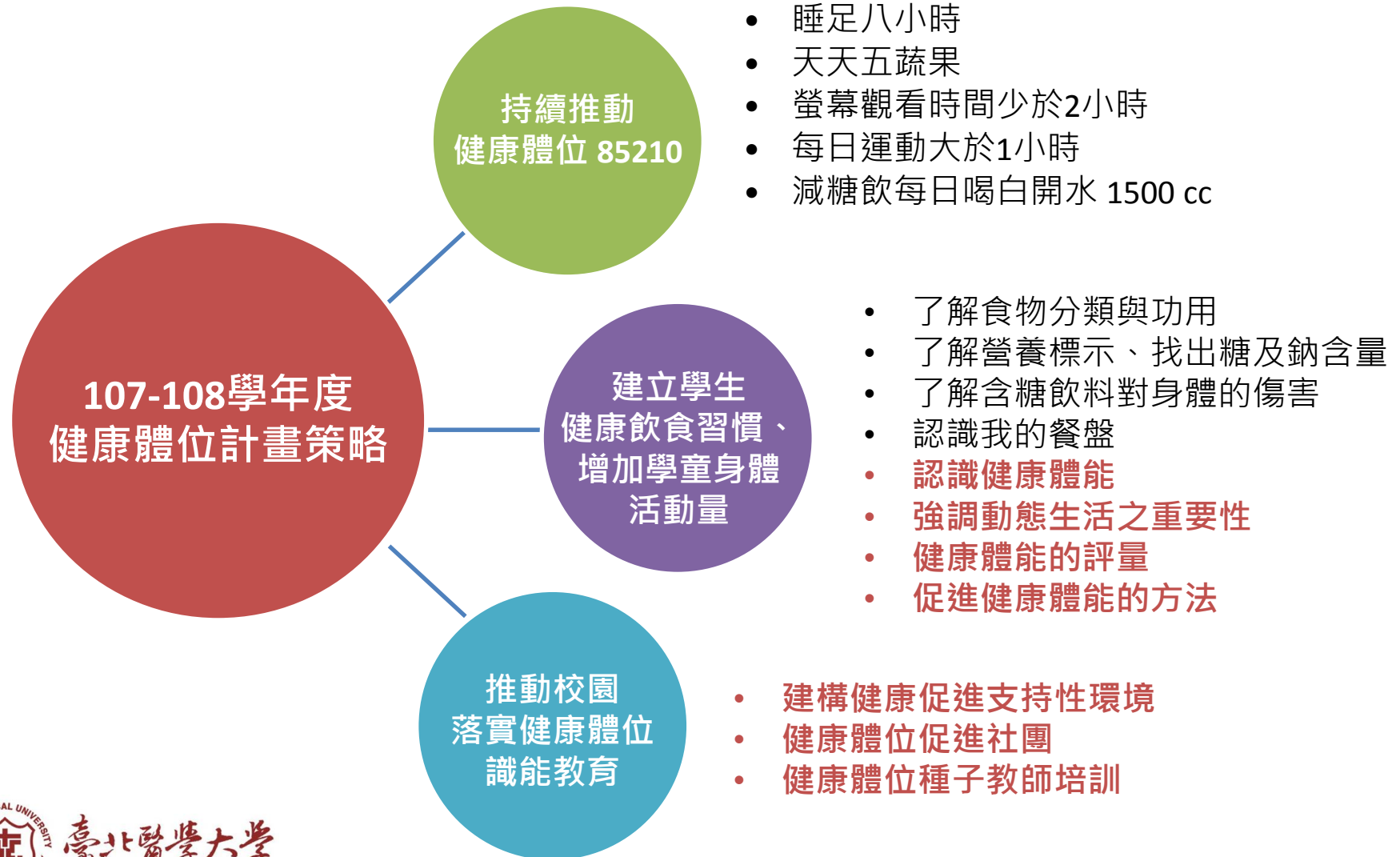
# 102-106學年國小及國中學生體位肥胖比率



# 雙重營養不良負擔對學童的影響

- 體重過輕
  - 造成生長遲緩、注意力減退等健康問題
- 體重過重或肥胖
  - 造成未來糖尿病、代謝症候群、血脂異常、高血壓、冠狀動脈心臟病等慢性疾病的風險上升

# 計畫目標與執行項目



	Population	Strategies
Primary prevention  <b>General</b>	Population-wide interventions that include youth of all body sizes or weight	<u>Eating</u> and <u>physical-activity</u> messages or programs intended to prevent incidence of overweight/obesity and/or provide a <u>supportive environment</u> for weight maintenance
Secondary prevention  <b>Selective</b>	Overweight or obese youth with <u>no weight-related comorbidities</u>	More structured and involved eating and physical-activity programs <u>intended to help overweight and obese youth obtain a healthy weight</u> ; may require medical approval or limited supervision
Tertiary prevention  <b>Targeted</b>	Overweight or obese youth <u>with comorbidities</u> <u>Severely obese youth</u>	Intensive and comprehensive treatments for overweight and obese youth conducted under medical supervision with a focus on resolving <u>weight-related comorbidities</u> or at least decreasing their severity

<sup>a</sup>NA=not applicable.



# 兒童肥胖因素評估

營養/飲食因素	評估問題舉例	正向健康飲食
外食/速食 1B	每週吃幾次?	建議增加低熱量高營養密度、乳類製品、高纖食物等
含糖飲料 1A	一天喝幾次? 一天喝多少ml?	建議避免含糖飲料包含：果汁、汽水、調味乳、運動飲料、甜茶飲等
食物份量 1B	食物份量較大會吃不完嗎?	適量取代大份量食物
高熱量密度食物 1B	每週吃幾次油炸食物?	建議避免高熱量密度食物，包含：炸物、燒烤、甜食、油類調味料、高脂肉類等
水果和蔬菜 1B	每天午餐/晚餐吃蔬果份數?	建議每日 $\geq 5$ 份，新鮮蔬果多樣性（水果優於果汁）
早餐 1B	在家或在學校會吃早餐嗎?	早餐的重要性
正餐餐次/零食 1B	在家吃正餐/零食的時間?	不建議節食或少吃一餐

# 兒童肥胖因素評估

## 營養/飲食 因素

## 策略

水果和蔬菜 1B

建議每日 $\geq 5$ 份，新鮮蔬果多樣性  
水果優於果汁  
午餐達標  
蔬果洗滌、製備

早餐 1B

家庭備早餐/校提供  
早餐種類選擇

正餐餐次/零食  
1B

不節食或少吃一餐  
餐間不吃零食/糖飲  
餐間蔬果/高營養密度食物

# 兒童肥胖因素評估

營養/飲食  
因素

評估問題舉例

策略

含糖飲料  
1A

一天喝幾次?  
一天喝多少ml?  
誰提供?  
什麼種類?

避免含糖飲料: 果汁、汽水、  
調味乳、運動飲料、甜茶飲

每日1500 ml白開水

校園無糖飲

不鼓勵/不獎賞

# 兒童肥胖因素評估表

活動、行為 因素	評估問題舉例	建議內容
活動	每日使用電子產品時間?	建議使用時間應小於2個小時
	每日活動量?	建議每日應大於1個小時
行為	兒童自我管理?	主要著重於兒童健康行為的改變， 其次為兒童體重減輕目標，且體重減輕目標以兒童年齡及肥胖程度來考量 1B
	父母行為?	
	家庭飲食/活動環境?	

# 生活型態介入

父母積極介入  
生活型態調整

1A

運動/活動量：  
不一定能降低體重，  
但可以降低體脂肪  
1A

運動種類：  
動態平衡訓練  
肌/耐力  
有氧運動

行為改變：  
降低靜態活動  
增加步行  
1A

飲食：  
減少含糖飲料  
減少外食（速食）  
1A

睡眠：  
6-12歲→ 每天睡眠  
9-12小時  
13-18歲→ 每天睡眠  
8-10小時  
1B



# 體能活動介入

## 1. 綜合個人健康狀態、環境條件及興趣

涵蓋心肺功能、肌力/肌耐力、柔軟度等 1A

## 2. 認知與行為改變、養成動態生活習慣

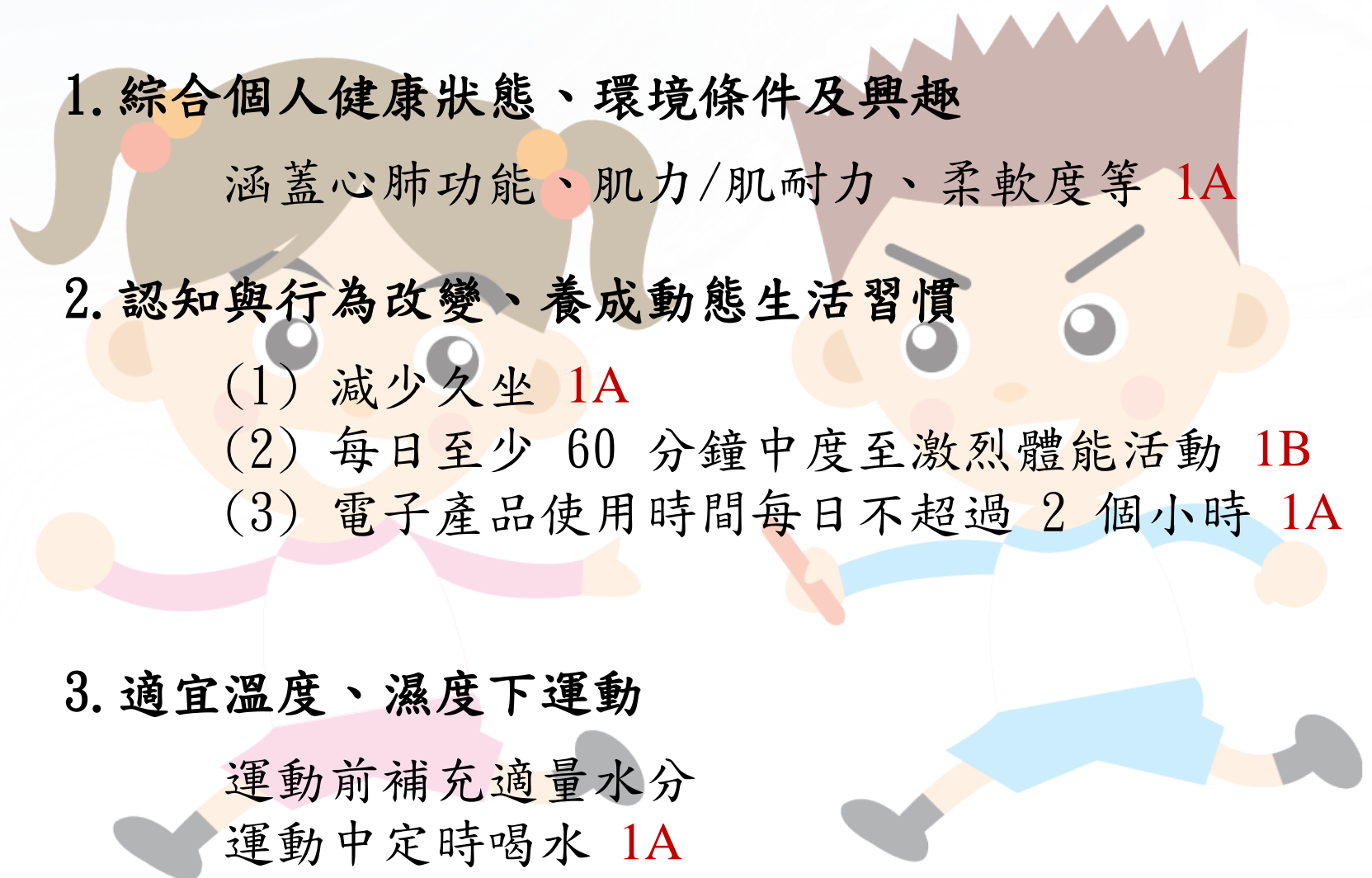
(1) 減少久坐 1A

(2) 每日至少 60 分鐘中度至激烈體能活動 1B

(3) 電子產品使用時間每日不超過 2 個小時 1A

## 3. 適宜溫度、濕度下運動

運動前補充適量水分  
運動中定時喝水 1A





# Prevention

**Table 12**

Recommendations for pediatric obesity prevention (see text).<sup>144,149</sup>

1. Avoidance of calorie-dense, nutrient poor foods (i.e., sugar-sweetened beverages, sports drinks, fruit drinks, most fast foods).
2. Engagement in physical activities for at least 20 minutes to 60 minutes 5 times daily per week.
3. Foster healthy sleep patterns.
4. Establish a balance between unavoidable technology-related screen time with increased opportunities for physical activity.
5. Enlist the participation of the entire family not just the child or teenager.
6. Provide assessment of family function and appropriate referral to address family stressors.
7. Utilization of school-based programs and community engagement in pediatric obesity preventive programs.
8. The use of comprehensive behavior-changing interventions.
9. The promotion of breast-feeding in infants.

# Healthy habits for all families

**The goal is for children over time to learn to eat the foods their parents eat and enjoy healthy meals**

Healthy Habits for All Families to Adopt: 5-4-3-2-1-0

- 
- |   |   |
|---|---|
| 5 | Eat 5 to 9 servings of fruits and vegetables every day                  |
| 4 | Eat at least 4 meals as family together at home every week              |
| 3 | Eat 3 meals a day (including breakfast)                                 |
| 2 | Watch <2 hours of screen time daily (TV, tablet, iPad, and video games) |
| 1 | Get at least 1 hour of physical activity or active play every day       |
| 0 | Drink almost no soda, sweet tea, juice, or sports drinks                |
-



# Recommendations for the prevention of obesity and overweight in early and middle school years

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## Nutrition

### Varied, balanced diet:

- Ample beverages (water or unsweetened, sugar-free drinks)
  - Plentiful varied plant-based foods (vegetables, fruit, whole grain products, potatoes)
  - Limited animal derived products (milk/milk products, meat, fish, eggs)
  - Very limited sugar and sweets, age adjusted portion sizes
  - Limitation or elimination of sweetened drinks
  - No snacking
  - Creation of a healthy, balanced school meal program
-

# Recommendations for the prevention of obesity and overweight in early and middle school years

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## Physical activity and sports

- Daily physical activity of at least 90 minutes (possible also in periods of 15 minutes for endurance and interval training)
  - Minimum of 12,000 steps per day
  - Limit sedentary activity to a maximum of 2 h/day
-

# Recommendations for the prevention of obesity and overweight in early and middle school years

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## Media consumption

- Limit media consumption as well as sedentary leisure time according to age:
- For children 7–11 years: 60 m maximum

# Recommendations for the prevention of obesity and overweight in adolescence

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## Nutrition

Varied, balanced diet:

- Ample beverages (water or unsweetened, sugar-free drinks)
  - Plentiful varied plant-based foods (vegetables, fruit, whole grain products, potatoes)
  - Limited animal derived products (milk/milk products, meat, fish, eggs)
  - Very limited sugar and sweets, age adjusted portion sizes
  - Limitation or elimination of sweetened drinks
  - No snacking
  - Creation of a healthy, balanced school meal program
-

# Recommendations for the prevention of obesity and overweight in adolescence

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## Physical activity and sports

- Daily physical activity of at least 90 minutes (possible also in periods of 15 minutes for endurance and interval training)
  - Minimum of 12,000 steps per day
  - Limit sedentary activity to a maximum of 2 h/day
-

# Recommendations for the prevention of obesity and overweight in adolescence

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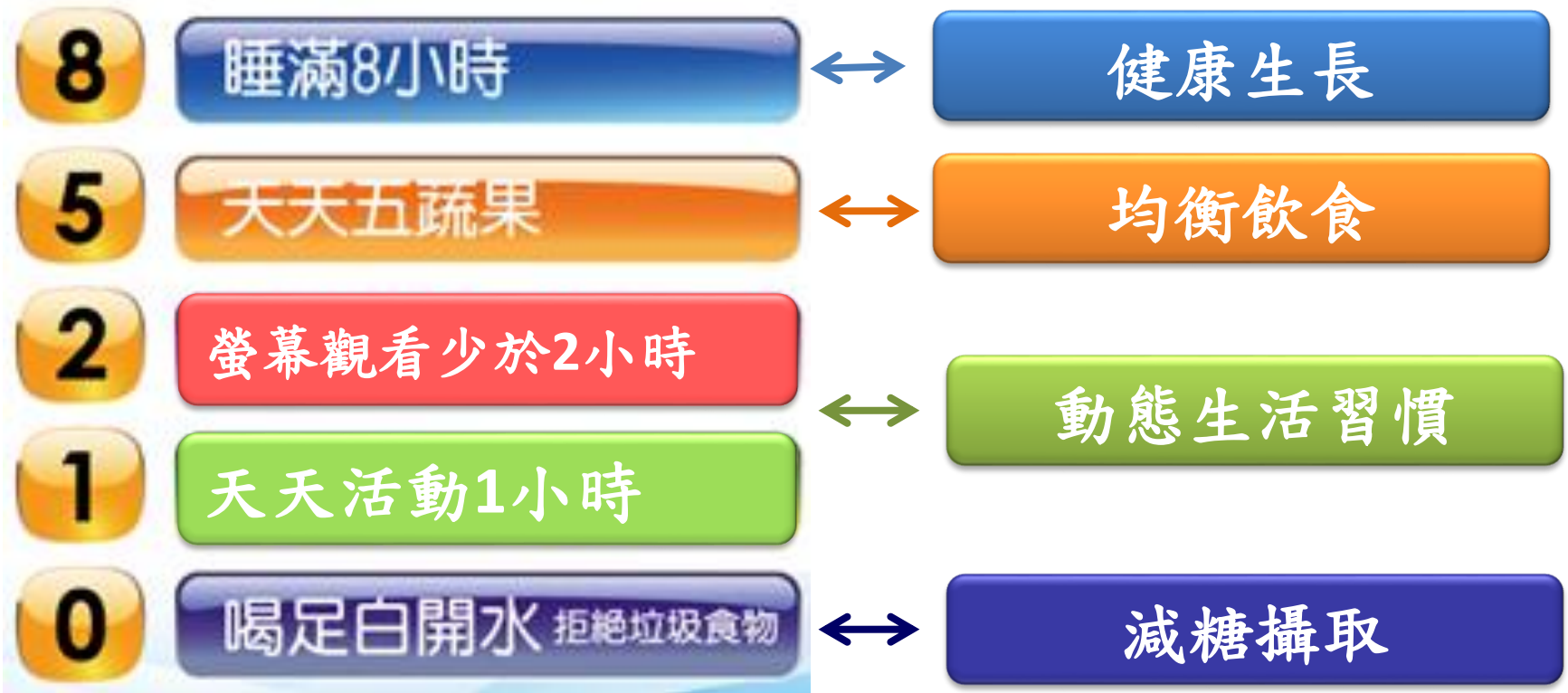
## Media consumption

Limit media consumption as well as sedentary leisure time according to age:  
For adolescents age 12 years and older. 120 min maximum per day

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# 持續推動健康體位 ( 85210 )

維持良好體位全校目標  
(保我210)





# 健康體位 (85210)

睡滿 **8** 小時



## 睡飽飽，精神好、表現好

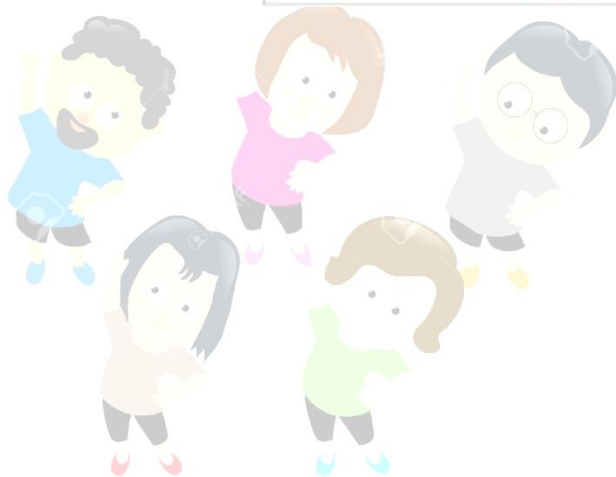
- 睡眠是學習的重要關鍵
- 睡眠時腦中分泌神經傳導物質，
- 如：生長激素、血清素、正腎上腺素等
- 血清素濃度與記憶與平靜有很大關係
- 生長激素會讓小孩子長高，修補細胞損傷

## 一眠大一寸，睡得香，讀書才記得住

- 睡覺時會分泌生長激素
- 晚上11點到3點分泌最多
- 睡得香（快速動眼期）昨天讀的書才會存檔記起來

## 如何才會睡飽飽

- 教導規律的讀書習慣，安排時間
- 鼓勵學生9點以前上床睡覺
- 培養良好且規律的睡眠習慣
- 適度生活規範
- 睡前避免看電視、打電腦、玩電動





# 健康體位 (85210)



天天 **5** 蔬果



## 100大卡熱量的飲食

少吃100大卡

- 1：一杯水（少喝一份 250 cc含糖飲料）
- 3：刪熱量（少吃三分之一小包薯條、半條巧克力棒、半包牛奶糖）
- 5：五蔬果（三天一次菠蘿麵包、蜂蜜蛋糕改為水果）
- 7：油切（炸排骨改滷排骨、炸魚改蒸魚）
- 1/2瓶蘋果西打（一瓶= 350 cc）
- 1/3杯冰淇淋（小美冰淇淋 200 cc）
- 1/4包泡麵
- 1個統一布丁

## 午餐蔬菜吃光光

- 提供學生足量多色蔬果
- 用一學半大小的盛勺裝量
- 監督午餐打菜之蔬菜份量
- 孩童吃光蔬果才可以出去玩
- 用餐時間要滿20分鐘

# 健康體位 (85210)

螢幕觀看  
時間少於



2

**四電少於2 拯救北極熊**  
每減少用電腦30分鐘, 撿取一塊冰塊, 當海  
面上的冰塊點滿時就算成功拯救北極熊的家

**節電撲滿**

◎每人每天少打電腦30分鐘, 全台一  
年省100萬度電, 相當於節省1/10  
核一廠一年的發電量。  
◎一度電會產生0.64ppm的磁場量,  
讓我們減少用電腦降低磁場, 幫助  
北極熊一臂之力。



看電視、玩電動、打電腦、用電話  
每天少於2小時

請您跟我這樣做

1. 早自習變成早運動
2. 課間運動提供足夠運動器材
3. 晨間與課間靜態活動改成動態運動
4. 發展下課10分鐘的動態遊戲、運動
5. 發展校本運動
6. 發展室內運動
7. 發展有趣的運動
8. 善用外場
9. 登錄運動時間
10. 動態回家作業



減少久坐

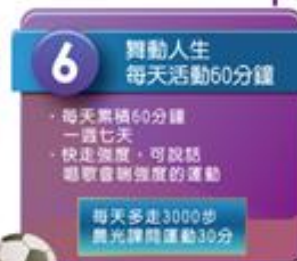
1. 督促學生下課離開坐位, 走出教室, 望遠、休息、伸展
2. 設計教學活動, 近距離用眼限制在30分鐘內
3. 發展、鼓勵下課時間之動態活動
4. 不鼓勵學生去網咖
5. 學校的電腦加銀幕暫歇軟體



# 健康體位 (85210)



## 天天運動 30分 X2



### 天天運動30分鐘

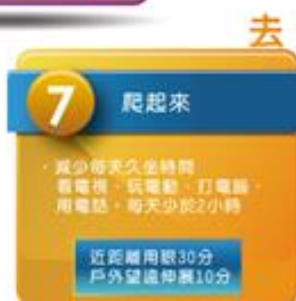
- 早自習變成早運動
- 課間運動提供足夠運動器材
- 晨間與課間的靜態活動改成動態運動

### 多運動會快樂

- 運動時分泌腦內啡，心情會變好
- 運動時會增加讓人平靜的腦波α
- 運動時會增加促進人際關係的腦波

### 快樂動會長高

- 肌肉的拉扯會刺激骨骼生長
- 中低強度的運動(追逐跑跳碰)會刺激長高
- 長時間、過量的訓練反而讓人長不高

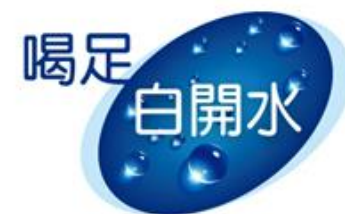


### 快樂動會聰明

- 多元刺激的運動會增加腦神經的聯結
- 成熟的腦會壓抑外來不重要的干擾訊息



# 健康體位 (85210)



每天喝白開水  
1500 cc以上 (6杯馬克杯)

## 充足飲用白開水

1. 教室人人有水杯
2. 外出人人帶水壺
3. 體育場館有足夠飲水機(直接飲用式)
4. 午餐附餐不提供含糖飲料
3. 不以含糖飲料獎勵學生

## 數學時間

喝足白開水，今天小朋友的  
杯子為\_\_\_\_\_CC，那小朋友  
要喝\_\_\_\_\_杯才能達到  
1500 CC呢？



# 甜蜜的負擔



# 含糖飲料不可多

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兒童每公斤體重1.75公克的糖水，例如20公斤體重，只要喝約350c.c.的含糖飲料，就會抑制生長激素兩小時。



# 衛福部國健署--校園周邊健康飲食輔導計畫

HPA 衛生福利部 國民健康署

## 新減糖 運動GO

- 無糖 規泡茶
- 微糖 鮮奶茶
- 天然甜 新鮮蔬果汁

☒ 輕鬆抗糖化  
☒ 喝的健康不老化  
☒ 生活有活力

註：本海報適用於飲料店，將依業者參與意願，增減下列店家LOGO

Mr. Wish, Chaiing, CoCo, 熱帶雨林, 夏美露, CORNBUY, 5星, Sharetea, 永樂堂, 紅心巧克力

365天 健康組合餐

## 天天聰明選 健康有朝氣

營養滿分 不怕卡路里！

註：適用超商、早餐店、速食店  
直式、橫式請擇1款，將依實際輔導情形，調整版面套用1-5套組合

大卡

小卡

大卡

小卡

大卡

小卡

大卡

小卡

大卡

小卡

每日參考值：熱量 2000 大卡

水果類 3份	全穀類 3碗(12份)	豆魚肉蛋類 6份
蔬菜類 4份	低脂乳品 1.5杯(360毫升)	油類及堅果種子類 6份

HPA 衛生福利部 國民健康署

廣告 本海報設計參考自國民健康署健康飲食輔導計畫

店家LOGO位置

	Population	Strategies
Primary prevention <b>General</b>	Population-wide interventions that include youth of all body sizes or weight	<u>Eating</u> and <u>physical-activity</u> messages or programs intended to prevent incidence of overweight/obesity and/or provide a <u>supportive environment</u> for weight maintenance
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<sup>a</sup>NA=not applicable.



# Effectiveness of nutrition-education and physical-activity interventions

**1. In school-based programs, what is the effectiveness of nutrition education as a part of an intervention to treat childhood overweight?**

Conclusion statement: There is insufficient evidence to draw conclusions about the effectiveness of school-based nutrition-education interventions alone to address adiposity in children.

Grade III<sup>a</sup>

**2. In school-based programs, what is the effectiveness of altering physical-activity patterns as a part of an intervention to treat childhood overweight?**

Conclusion statement: The use of school-based physical-activity interventions alone is unlikely to bring about improvement in measures of adiposity in school-aged children.

Grade I

**3. In school-based programs, what is the effectiveness of combined nutrition-education and physical-activity interventions to address childhood overweight?**

Conclusion statement: School-based interventions that combined both a physical-activity and a nutrition-education component were diverse, combining different types of interventions for different lengths of time.

Multicomponent school-based interventions that include at least physical-activity and nutrition-education interventions may be effective in improving adiposity measures, although results appear to be heavily dependent on a wide range of intervention design factors, population, and context.

Grade II

# 健康體位管理種子教師培訓

## 種子教師培訓能力目標：

1. 使教師具有健康體位促進的相關知識
  2. 能主動帶領健康體位促進社團
  3. 能收集數據進行研究及策略改善
  4. 能帶領學生回饋於健康體位之促進方法及效果
- 培訓完成給予種子教師培訓證明
  - 鼓勵學校成立健康體位促進社團，使其具有正向觀感，讓學童在遊戲中能實踐健康飲食及規律運動。



# 健康體位管理種子教師培訓

## 107 學年度培訓內容

以**運動**、**營養教育**、**行為習慣調整**為三大主軸，使種子教師具備輔導學童維持健康體位所需之知識、能力及技巧。

學童具備運動及營養知識外，更須身體力行，故本次培訓加入行為習慣調整之概念，以期能教導學童在生活中落實運動習慣及健康飲食，以達到健康體位。

## 107 學年度培訓主題

- 過重及肥胖兒童營養與生活行為教育
- 體重過輕兒童營養與生活行為教育
- 兒童肥胖防治之運動實證與應用
- 健康體位與學童成長 (體位、性早熟、睡眠與生長議題)



# 健康體位管理種子教師培訓

## 108 學年度培訓內容

強化學童健康體位維持之**行為及習慣養成為**主軸，除運動、營養教育外，配合場域之學習及操作，並由家長共伴參與，已加強兒童健康生活行為能力。

## 108 學年度培訓主題

- 不良體位(過重及過輕)學童營養與生活行為教育
- 兒童肥胖防治之運動實證與應用
- 家長參與之兒童不良體為(過重及過輕)改善技巧與策略
- 兒童健康生活行為能力之培養



# 健康體位重點學校輔導

- 每學年度輔導25校
- 每校4人次，實地輔導至少2次以上
- 對象：1. 過輕、過重、肥胖體位偏高 2. 偏鄉學校
- 設計輔導訪視表單提供訪視委員評價用
- 訪視內容：
  - 深入校園，了解重點學校需求
  - 推薦使用生活技能融入健康體位教學教材



# 輔導訪視內容-委員訪視

上學期  
期初

內容：評估該校需求並給予指導

目標：了解該校學生體位分布狀況及面臨的問題

上學期  
期末

內容：評估該學期健康體位實行策略之成效

目標：了解其策略是否合適並給予指導

下學期  
期初

內容：了解學生體位變化及評估下學期之策略

目標：確認該校健康體位策略執行方向正確

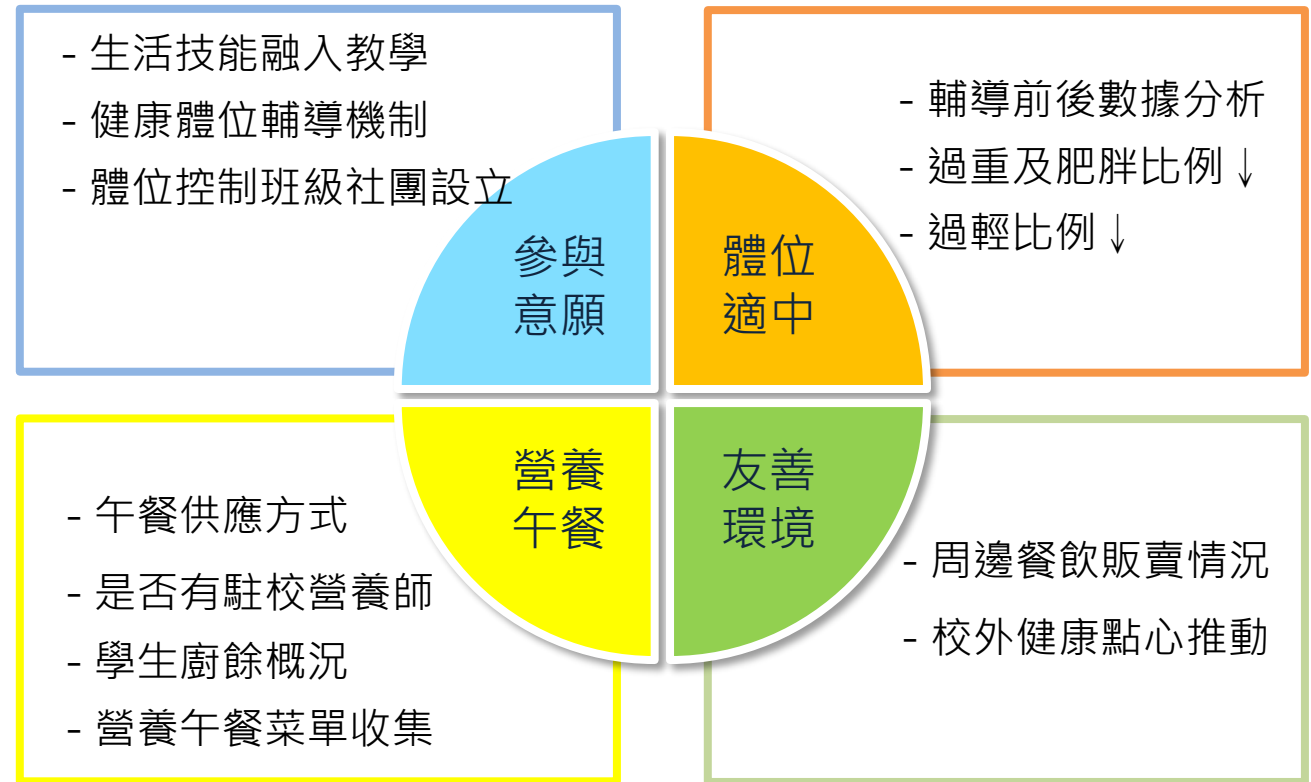
下學期  
期末

內容：評估整學年健康體位實行策略之成效

目標：整學年度健康體位計畫檢討

# 輔導訪視內容-表單設計

- A. 學生體位統計資料
- B. 輔導紀錄(文字敘述及照片)
- C. 輔導評分



# 「健康體位績優學校徵選活動競賽」

## ■ 107、108學年各辦理 1 場

目的：提高學童體位適中率，持續降低肥胖與過輕比率。

評選實施辦法：

- － 參賽組別：國小組、國中組、高中組
- － 參賽內容及評分項目佔比：

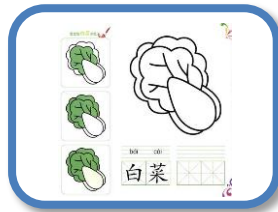
評分項目	評分佔比 (%)	備註
健康體位實施策略/參與意願	30	不限呈現方式
學童體位適中率	30	過重、肥胖及過輕比例降低百分比
健康體位友善環境	20	
學童營養午餐狀況	20	
總計	100	



# 國小健康食材學習活動

## 學習單設計

### 低年級



蔬果著色、食材小卡

- 透過實地接觸蔬果讓學童了解食物原形
- 增加品嚐食物原味意願
- 減少吃過度加工食品、零食等習慣

### 中年級



六大類食物連連看、營養標示面面觀

- 學習六大類食物分類及營養標示查看
- 了解包裝食品中的糖及鈉含量
- 了解高糖或高鈉食品對健康的影響

### 高年級



蔬果清洗截切練習 我的餐盤 餐食設計

- 簡易餐食食譜設計
- 包含採購、洗切、烹調等
- 落實健康飲食

# **Grocery store/ supermarket nutrition education**

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**One activity that may facilitate the achievement of healthful dietary patterns is grocery shopping for healthy foods**

**Do grocery store tours lead to knowledge gains?**

**Do grocery store tours lead to behavior change?**

**What attributes of grocery store tours are associated with health-related outcomes being positively met?**

全穀  
根莖類



蔬菜類



水果類



低脂  
乳品類



我們完成了!

豆魚  
肉蛋類



油脂與  
堅果種子類



創造





創造我們自己的飲食金字塔!

## Supermarket Visit

A key part of learning is 'doing' and the PAK'nSAVE, New World or Four Square supermarket visit allows students to apply classroom learning in an interactive setting.





# Tesco launches food education programme

Date Posted: 11/02/2014



It's been well documented that eating habits can be heavily influenced in early childhood. The [Eat Happy food education project](https://www.schooltravelorganiser.com/Features/Tesco-launches-food-education-programme), launched by supermarket giant [Tesco](https://www.schooltravelorganiser.com/Features/Tesco-launches-food-education-programme), will be offered to every Primary school in the UK, with its aim being to help school children have a healthier relationship with food.

First stop: Farm to Fork

<https://www.schooltravelorganiser.com/Features/Tesco-launches-food-education-programme>



# 國小健康食材學習活動

低年級



- 透過實地接觸蔬果讓學童了解食物原形
- 增加品嚐食物原味意願
- 減少吃過度加工食品、零食等習慣

蔬果著色、食材小卡

學習單設計

中年級



- 學習六大類食物分類及營養標示查看
- 了解包裝食品中的糖及鈉含量
- 了解高糖或高鈉食品對健康的影響

六大類食物連連看、營養標示面面觀

高年級



- 簡易餐食食譜設計
- 包含採購、洗切、烹調等
- 落實健康飲食

蔬果清洗截切練習 我的餐盤 餐食設計

# 模擬示範教學

乳品區

肉品區

蔬菜區



水果區

- ✓ 聯繫符合上述學習條件之場域
- ✓ 國小低、中、高年級各約10-15位











# 國小健康食材學習活動

## 學習單設計

### 低年級



蔬果著色、食材小卡

- 透過實地接觸蔬果讓學童了解食物原形
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- 減少吃過度加工食品、零食等習慣

### 中年級



六大類食物連連看、營養標示面面觀

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### 高年級



蔬果清洗截切練習 我的餐盤 餐食設計

- 簡易餐食食譜設計
- 包含採購、洗切、烹調等
- 落實健康飲食

# Garden-based nutrition education

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Garden-based nutrition education programs, which have been evaluated in school, afterschool, and larger community settings, are promising for increasing children's **fruit and vegetable preferences and intakes**

Gardening increased children's access to vegetables and reduced their reluctance to try new foods



# Life skill behaviorally based nutrition education

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Integrating educational messaging with environmental change to make healthy choices easier is essential, as is a focus on programs that teach food purchasing and preparation skills, as well as parenting practices regarding food and activity

The effectiveness of behaviorally based nutrition education across the age groups are needed to reinforce the importance of teaching our children food preparation skills, menu planning, food shopping, and food selection skills

# Life skill behaviorally based nutrition education

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**These skills, previously taught in home economics courses, have largely been phased out of school curricula, and it is time to re-examine their importance as a necessary life skill**

**IOM recommendations for national nutrition-education curriculum standards for prekindergarten through 12th grade are forthcoming and will be important for promoting evidence based academic content and strategies in support of child health promotion and obesity prevention**

# 我的餐盤

## 我的餐盤 聰明吃營養跟著來

### 乳品類

每天早晚一杯奶  
每天1.5-2杯



### 水果類

每餐水果拳頭大  
在地當季多樣化



### 蔬菜類

菜比水果多一點  
當季且1/3選深色



### 堅果種子類

堅果種子一茶匙  
每天1份堅果種子  
約杏仁果5粒、腰果5粒  
、花生10粒

### 豆魚蛋肉類

豆魚蛋肉一掌心  
豆>魚>蛋>肉類

### 全穀雜糧類

飯跟蔬菜一樣多  
至少1/3為未精製全穀雜糧之主食

# 辦理受輔導學校成效績優評選

## ■ 於108學年辦理

- 目的：鼓勵受輔導學校積極改善學校推動策略，降低學生體位過重及肥胖、過輕比率，提升體重適中率。
- 評選辦法：召開評選會議1場，邀請或依訪視委員之輔導過程或結果，選出具有推動特色或進步成效顯著之學校共9名。

謝  
謝  
聆  
聽





Thank you for your time and attention !



# BMI z score

**BMI z score**, an alternative to BMI percentile, is now widely used in research and clinical studies in youth

BMI z score is defined as the BMI of the child or adolescent transformed into the number of standard deviations (SDs) above or below the population mean BMI for age and sex

More sensitive to quantifying changes in weight status



# BMI z score

**Using BMI z scores:**

**Overweight  $\geq 1.04$  SD**

**Obesity  $\geq 1.64$  SD**

**Severe obesity  $\geq 2.33$  SD**

**A decrease in BMI z score of at least 0.6 SD (over 6 to 12 months) or 0.5 SD decrease (over 0 to 6 months) can be associated with a clinically relevant reduction in percent **body fat****



# Waist Circumference

**There is evidence that obtaining waist circumference as an indicator of abdominal adiposity offers additional information about metabolic and cardiovascular disease risk**

**1999-2008 National Health and Nutrition Examination Survey**



年齡	男性				女性			
	過輕 (BMI ≤)	正常範圍 (BMI 介於)	過重 (BMI ≥)	肥胖 (BMI ≥)	過輕 (BMI ≤)	正常範圍 (BMI 介於)	過重 (BMI ≥)	肥胖 (BMI ≥)
6	13.5	13.5-16.9	16.9	18.5	13.1	13.1-17.2	17.2	18.8
6.5	13.6	13.6-17.3	17.3	19.2	13.2	13.2-17.5	17.5	19.2
7	13.8	13.8-17.9	17.9	20.3	13.4	13.4-17.7	17.7	19.6
7.5	14	14.0-18.6	18.6	21.2	13.7	13.7-18.0	18	20.3
8	14.1	14.1-19.0	19	21.6	13.8	13.8-18.4	18.4	20.7
8.5	14.2	14.2-19.3	19.3	22	13.9	13.9-18.8	18.8	21
9	14.3	14.3-19.5	19.5	22.3	14	14.0-19.1	19.1	21.3
9.5	14.4	14.4-19.7	19.7	22.5	14.1	14.1-19.3	19.3	21.6
10	14.5	14.5-20.0	20	22.7	14.3	14.3-19.7	19.7	22
10.5	14.6	14.6-20.3	20.3	22.9	14.4	14.4-20.1	20.1	22.3
11	14.8	14.8-20.7	20.7	23.2	14.7	14.7-20.5	20.5	22.7
11.5	15	15.0-21.0	21	23.5	14.9	14.9-20.9	20.9	23.1
12	15.2	15.2-21.3	21.3	23.9	15.2	15.2-21.3	21.3	23.5

## 12歲男學生為例

BMI 值  $\geq 85\%$  時，為過重: **21.3**

BMI 值  $\geq 95\%$  時，為肥胖: **23.9**

BMI值  $\geq 95\%$ 數值切點之 120% 為嚴重肥胖: **28.68**

Types of prevention	Target	Measures
General prevention (primary prevention)	Target group: General public Target: Counteracting the development of obesity	Creating awareness of obesity as an illness Establishing healthy surroundings (e.g. health-promoting school environments) Education and behavioral training in day care centers, schools and through mass media Improving physical activity opportunities in schools and communities Health orientation in politics (e.g. economic and agriculture policies) Removal of advertising in children's TV programming Cooperation of interest groups (e.g. food industries, health insurances, media and sport clubs)

Types of prevention	Target	Measures
Selective prevention (secondary prevention)	<p>Target group: Potentially at-risk group of general public</p> <p>Target: Obesity prevention along with the prevention of associated comorbidities</p>	<p>Early identification of and discussion with at-risk individuals through pediatricians and family doctors or physicians at public health offices</p> <p>Routine checkups for the purpose of offering and including in family-oriented training programs</p>



Types of prevention	Target	Measures
Targeted prevention (tertiary prevention)	<p>Target group: Overweight children and adolescents with high health risks or already obese</p> <p>Target: Weight stabilization and improvement of comorbidities</p>	<p>Interdisciplinary programs and measures (see recommendations under primary and secondary prevention)</p> <p>Support through the above-mentioned measures for general obesity prevention as well as measures of general health promotion</p>

Types of prevention	Target	Measures
Behavior-oriented prevention	<i>Personalized measures:</i> Addressing individual behavior and habits	Education in nutrition Promotion of movement during school lessons as well as educational programs for enhancing physical activities
Community-/ environment-based prevention	<i>Context related measures:</i> Facilitating health-related decision making	Provision of facilities and equipment in the school environment (e.g. playgrounds, healthy school meals and snacks)

# Recommendations for the prevention of obesity and overweight in infants and pre-school children

## Nutrition

- By age 1, meals should be taken seated with the family
- Introduction to new, healthy foods
- Positive mealtime conditions (e.g. positive atmosphere, no outside distractions: e.g. TV)
- Varied diet with plenty of beverages (water or unsweetened, sugar-free drinks)
- Ample plant-based foods (vegetables, fruit, potatoes, whole grain products)
- Limited animal derived products (milk and milk products, fish, eggs)
- Very limited added sugar and sweets
- Careful observation of the sugar content in food and drinks

# Recommendations for the prevention of obesity and overweight in infants and pre-school children

## Physical activity

- For children 3–5 years: at least 60 min of structured physical activity daily
- $\geq 3$  years: From 60 min to several hours of unstructured physical activity; limit inactivity to less than 60 minutes at a time, outside of sleep
- School age: a minimum of 60 min of moderate to intensive physical activity daily or at least 10,000 steps per day
- Adolescence: a minimum of 90 min of moderate to intense physical activity daily or at least 10,000 steps per day
- Acquisition of basic motor skills as the basis for future physical dexterity and activity
- Promoting access to indoor and outdoor exercise areas
- Education of parents and caregivers on the importance of physical activity

# Recommendations for the prevention of obesity and overweight in infants and pre-school children

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## Media consumption

- No TV in children's bedrooms
  - Limit access to media and in general reduction of leisure time spent sitting according to age:
  - For children under 3 years: 0 min
  - For children 3–6 years: 30 min maximum
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# Milgram experiment

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## Public Announcement

### WE WILL PAY YOU \$4.00 FOR ONE HOUR OF YOUR TIME

#### Persons Needed for a Study of Memory

\*We will pay five hundred New Haven men to help us complete a scientific study of memory and learning. The study is being done at Yale University.

\*Each person who participates will be paid \$4.00 (plus 50c carfare) for approximately 1 hour's time. We need you for only one hour: there are no further obligations. You may choose the time you would like to come (evenings, weekdays, or weekends).

\*No special training, education, or experience is needed. We want:

Factory workers	Businessmen	Construction workers
City employees	Clerks	Salespeople
Laborers	Professional people	White-collar workers
Barbers	Telephone workers	Others

All persons must be between the ages of 20 and 50. High school and college students cannot be used.

\*If you meet these qualifications, fill out the coupon below and mail it now to Professor Stanley Milgram, Department of Psychology, Yale University, New Haven. You will be notified later of the specific time and place of the study. We reserve the right to decline any application.

\*You will be paid \$4.00 (plus 50c carfare) as soon as you arrive at the laboratory.

TO:  
PROF. STANLEY MILGRAM, DEPARTMENT OF PSYCHOLOGY,  
YALE UNIVERSITY, NEW HAVEN, CONN. I want to take part in  
this study of memory and learning. I am between the ages of 20 and  
50. I will be paid \$4.00 (plus 50c carfare) if I participate.

NAME (Please Print) . . . . .

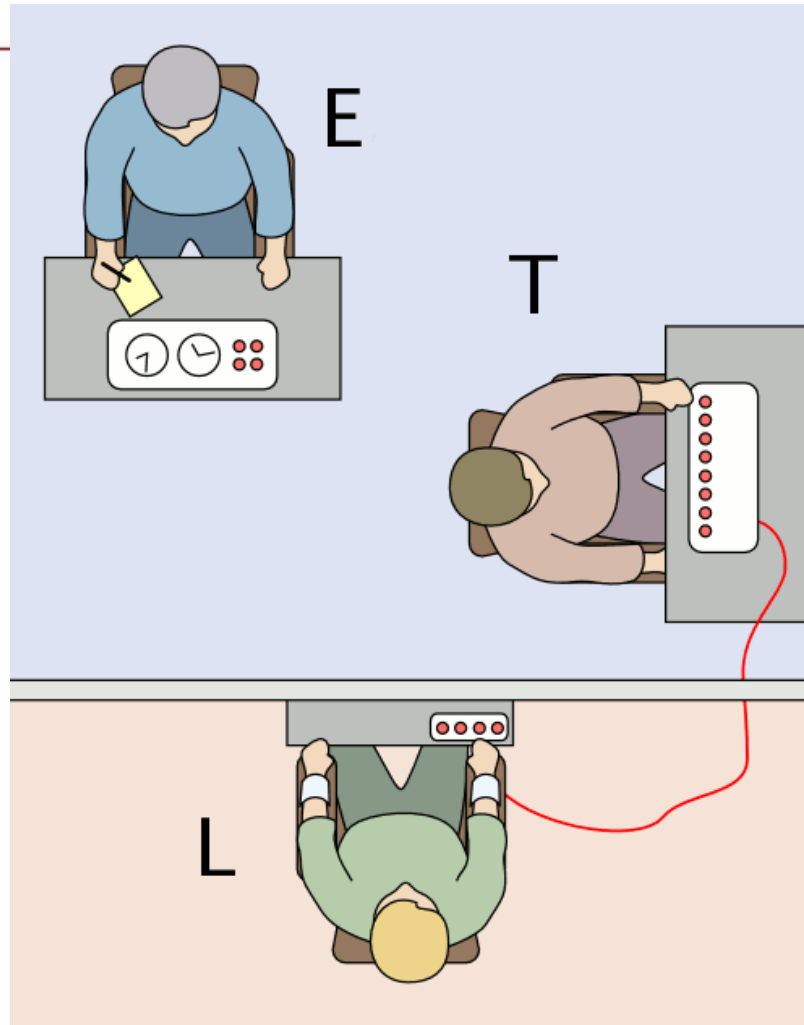
ADDRESS . . . . .

TELEPHONE NO. . . . . Best time to call you . . . . .

AGE . . . . . OCCUPATION . . . . . SEX . . . . .

CAN YOU COME:

WEEKDAYS . . . . . EVENINGS . . . . . WEEKENDS . . . . .



The experimenter (E) orders the teacher (T), the subject of the experiment, to give what the latter believes are painful electric shocks to a learner (L), who is actually an actor and **confederate**. The subject is led to believe that for each wrong answer, the learner was receiving actual electric shocks, though in reality there were no such punishments. Being separated from the subject, the confederate set up a tape recorder integrated with the electro-shock generator, which played pre-recorded sounds for each shock level.<sup>[1]</sup>

# Whistle blower



家長/社區



# Preventive counseling

Providers can use weight, height, and **BMI trajectories** to observe growth trajectories and are poised to detect concerns before a child becomes officially overweight

Providers should also discuss the child's growth trajectories with the **family**

The use of **color-coded growth charts** has been shown to improve parents' understanding of BMI, especially in parents of low numeracy skills



[illegible]

# Preventive counseling

**It is important that parents correctly understand their child's weight status**

**> 75% of parents with an overweight child report never having been told this**

**Parents with an accurate perception of weight status are more likely to be ready to make weight-related behavioral changes and to make those behavioral changes more effectively**

## 孩童肥胖嚴重 衛福部將以LINE通知家長體重排比

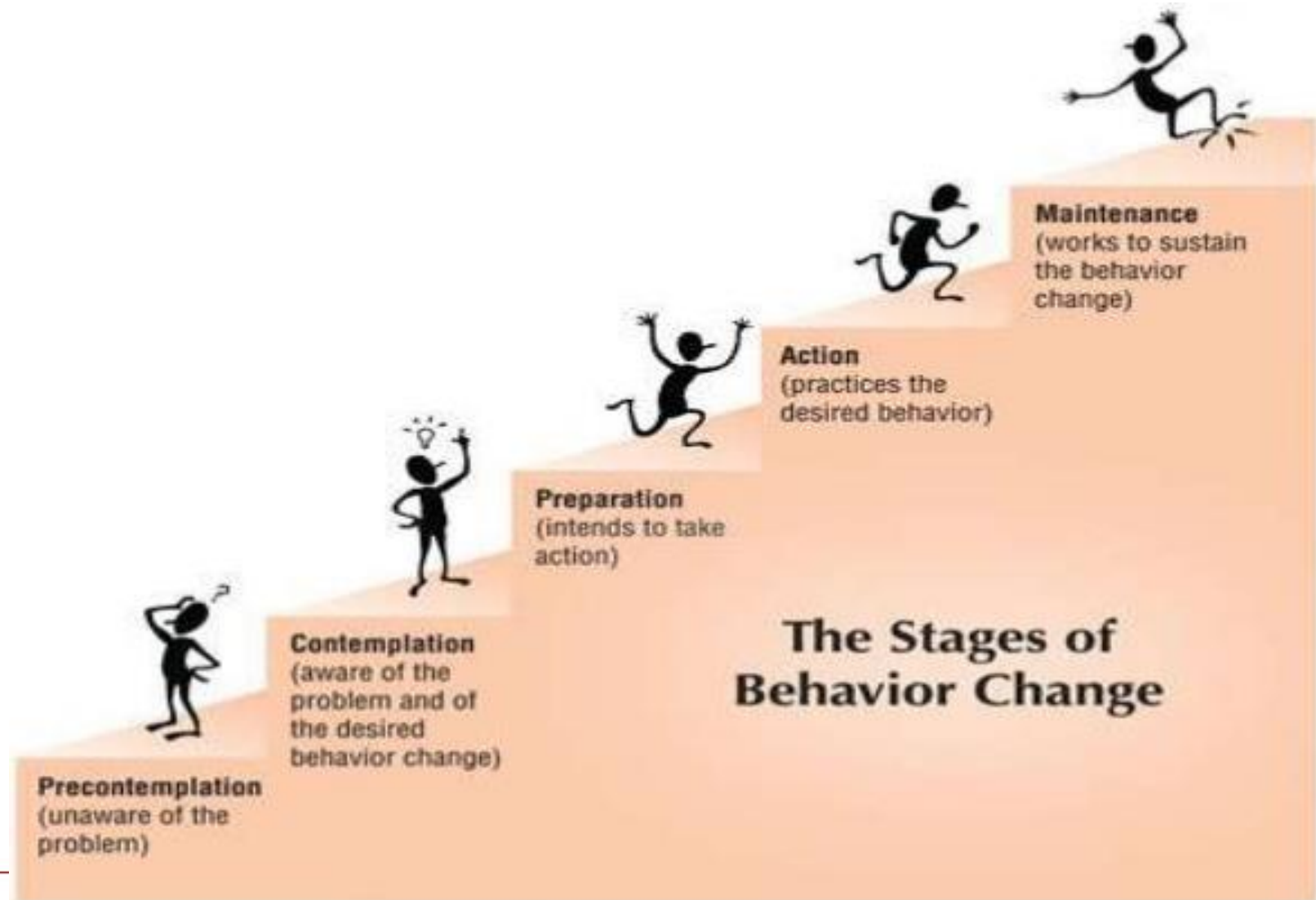
2018-05-20 12:23

〔即時新聞／綜合報導〕台灣因兒童的體重過重與肥胖率數年蟬聯亞洲第一，被稱作「亞洲小胖國」，雖然近年有所改善，但仍在亞洲前5，衛福部今年將選擇2至3間國小，試辦用通訊軟體「LINE」告知家長肥胖危害、孩子體位排比及如何改善等訊息，協助控制小孩體重，若成效不錯，將會推廣至全國。

《中國時報》報導，國健署長王英偉表示，我國面對兒童肥胖持續有因應措施，包括上月完成《國民營養法》草案，未來將會擴大納入高中、公、私立幼兒園「均不得提供含糖飲」，只不過要防治兒童肥胖，沒辦法靠單一方法解決。

報導稱，國健署參考國外，今年將首度利用通訊軟體「LINE」告知家長肥胖危害孩子體位排比及如何改善等訊息，協助控制小孩體重，會先選定2至3間國小試辦，並測試結果。王英偉表示，若測試有效，將會推廣至全國。

# The stages of behavior change





## Why So Many People Choose the Wrong Health Plans

By Richard H. Thaler

*The New York Times*, November 4, 2017

If you get health insurance from your employer, you have to make decision every year about which coverage to choose.

So here is a warning: If you are simply sticking with an old plan with a low deductible, that may well be a wrong and costly choice.

Because of human quirks, lack of understanding and overly complicated plans, many people are paying more without getting anything extra in return.

Economists have a term for a situation like this, where one option is better than another under any circumstances, dominance. And that is what we see in many workplaces: The cheaper health care plan, at every level of medical spending, often has a higher deductible – a higher spending hurdle that must be reached before reimbursements begin.

(He describes studies showing that the high deductible plan is usually the more rational choice.)

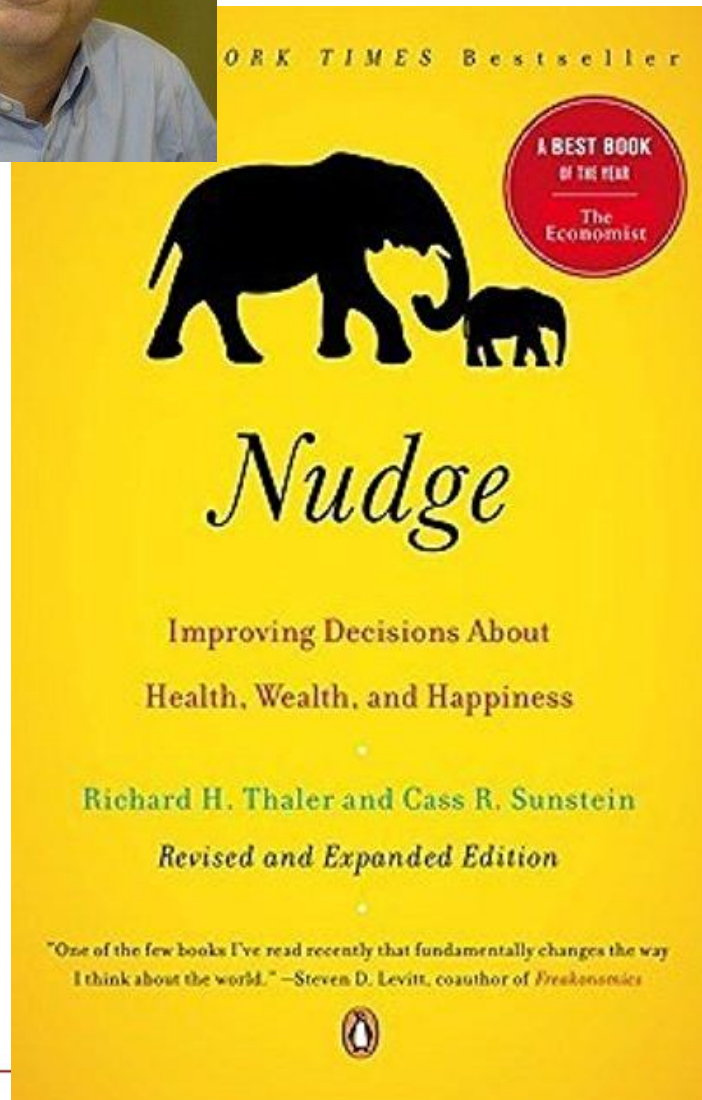
There are, however, many financial incentives for going the high-deductible route. Some are embodied in health savings accounts, of H.S.A.s, which provide tax breaks and are only offered in combination with high-deductible plans.

There is another compelling advantage: Many companies contribute to these accounts for their employees.

I realize this is all complicated. Unfortunately, it is impossible to say which specific plan is best for your family without looking closely at the details.

If you want hints about how to crunch the numbers for yourself, the accompanying article may help you.\*\*\*

*Richard H. Thaler, a professor of economics at the University of Chicago, has won the 2017 Nobel Memorial Prize in Economic Sciences.*





# Nudge



- A **nudge**, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives.
- "**Nudges** are not mandates. Putting the fruit at eye level counts as a nudge. Banning junk food does not



# Target behaviors and environmental modifications

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Families also should be encouraged to make modifications in their home environments to make it easier to **make healthy choices**

1. Ensuring easy availability of healthy alternatives:
  - keep a fruit bowl on the counter,
  - an apple slicer easily available,
  - vegetables and healthy foods in the front of the fridge
  - avoiding sugar-sweetened beverages

# Target behaviors and environmental modifications

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2. Using smaller plates, bowls, glasses, and serving dishes
3. Checking the serving size of prepackaged foods and using baggies to repackage the food into appropriate sized servings

# Target behaviors and environmental modifications

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4. Discouraging eating directly from the package or while engaged in screen time
5. Reducing the number of TV sets in the home
6. Removing TV and other media from the bedroom

# 國小學童健康行為模式





# 國中學童健康行為模式





# That Sugar Film (2014)

1h 30min | Documentary | February 2015 (Australia)

★ 7.4/10  
7,065

★ Rate This



Damon Gameau embarks on an experiment to document the effects of a high sugar diet on a healthy body.

**Director:** [Damon Gameau](#)

**Writer:** [Damon Gameau](#)

**Stars:** [Damon Gameau](#), [Hugh Jackman](#), [Milla Bakaitis](#) | [See full cast & crew »](#)



# I ate 40 teaspoons of sugar a day. This is what happened

For three years, Damon Gameau cut out sugar from his diet - then, for a documentary, he reintroduced the white stuff. The results were shocking

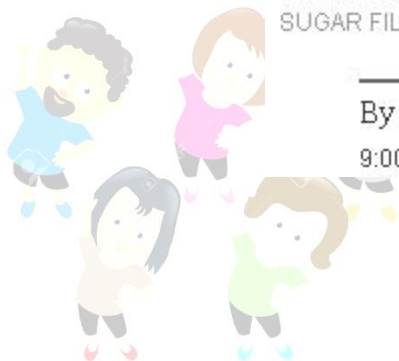


Damon Gameau ate 40 teaspoons of sugar every day for 60 days for his documentary Photo: THAT SUGAR FILM

By Damon Gameau

9:00AM BST 27 Jun 2015

<https://www.telegraph.co.uk/foodanddrink/healthyeating/11691125/I-ate-40-teaspoons-of-sugar-a-day.-This-is-what-happened.html>





In the mold of *Super Size Me*, Gameau makes himself the guinea pig. As part of the gimmick, he restricts his diet to packaged foods that may not seem so junky at first glance: granola bars, breakfast drinks, something called “fruit bites,” and so on. (These contain enough sugar, in aggregate, to reach a 40-teaspoon daily dose.)

You can imagine the results: Gameau’s binge leaves his brain and body in a shambles. He puts on 19 pounds, and adds 4 inches to his waist. His skin breaks out in pimples. He grows moody and lethargic. But the **turning point**, he says, came just 18 days into the project, by which point he’d **developed fatty liver disease**. “Sugar isn’t evil,” the film concludes, “but life is so much better when you get rid of it.”

[http://www.slate.com/articles/health\\_and\\_science/medical\\_examiner/2015/08/that\\_sugar\\_film\\_science\\_debunking\\_links\\_to\\_mood\\_health\\_fatty\\_liver\\_disease.html](http://www.slate.com/articles/health_and_science/medical_examiner/2015/08/that_sugar_film_science_debunking_links_to_mood_health_fatty_liver_disease.html)





Damon ate 40 teaspoons of hidden sugars a day from commonly perceived 'healthy' foods



<https://www.telegraph.co.uk/foodanddrink/healthyeating/11691125/I-ate-40-teaspoons-of-sugar-a-day.-This-is-what-happened.html>



This became the key part of the narrative and the rules were set. For 60 days I would maintain the same level of exercise that I already did and I would eat no chocolate, ice cream, soft drink or confectionery. The 40 teaspoons a day would be 'hidden sugars' found in foods like low fat yoghurt, cereals, muesli bars, juices, sports drinks and assorted condiments.



A doctor compares the before and after images of Damon (THAT SUGAR FILM)

I, the 50-year-old experimental participant, 8.5 kilograms, developed pre type 2 diabetes and heart disease risks, had an extra 10 centimetres of the dangerous visceral fat around my belly and noticed an enormous impact on my moods and cognitive functions (a topic that is increasingly being looked at in academic circles).

<https://www.telegraph.co.uk/foodanddrink/healthyeating/11691125/I-ate-40-teaspoons-of-sugar-a-day.-This-is-what-happened.html>

這兩個月內，Damon吃的不是高糖分飲料、糖果、甜甜圈等食物，而是被公認為「健康食品、減肥食品」的食物，那為什麼訂下「40勺糖」這個標準呢？我們從Damon在測試期間吃的食品來看…

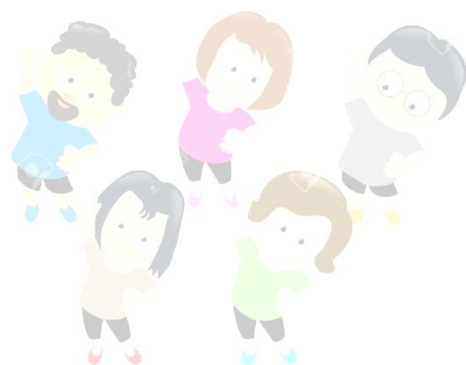
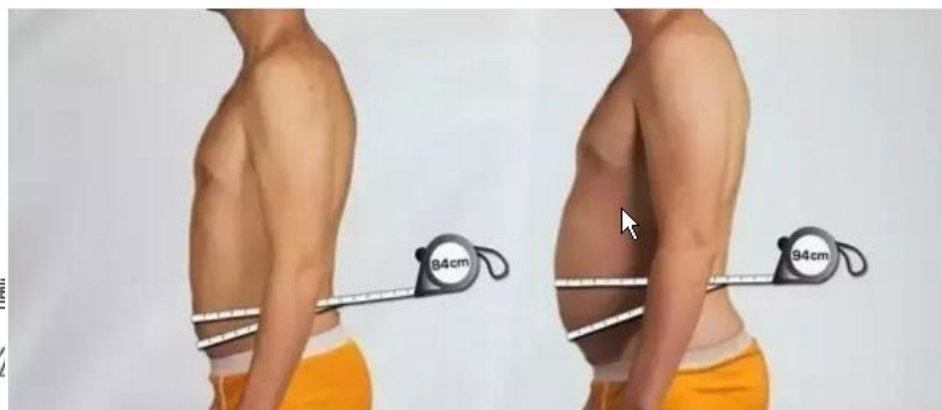
穀物脆片：含7.5勺糖

低脂酸奶：含4勺糖

蘋果汁：含9勺糖

這僅僅是一份早餐，就含有約20勺的糖，因此，定能輕易吃下40勺糖以上，你我皆如此。

60天過去，我們來看看Damon的實驗結果，體重有太大變化，但他多了顆明顯的肥肚、胖了8.5公斤、多了10公分。



# Motivational interviewing

**Motivational interviewing is an effective, evidence based way to counsel children and their families about making lifestyle changes by capitalizing on families' intrinsic motivation to change their health behaviors**

**In addition to changes in BMI, improvements in health behaviors, such as reduced consumption of sugar-sweetened beverages, reduced television time, increased physical activity, and reduced caloric intake**

# Motivational interviewing

Strategy	Example
After asking permission, provide the family information on the child's BMI using color-coded growth charts and relate to health.	"Is it okay if we talk about your daughter's weight and how that might be related to her health?" If yes, "Today we checked your child's BMI (a way of looking at her weight that takes into account her height), and her BMI is now in the red zone, a range where extra weight can begin to cause health problems."
Ask about family concerns for the child using nondirective and open questions.	"Do you have any concerns about your child's weight or how her weight may affect her health?"
Use a brief questionnaire or verbal questions to assess target dietary, physical activity, and screen time behaviors.	"About how many times on a typical day does your child drink sweet beverages, such as soda, sweet tea, juice, or sports drinks?"
Use reflective listening to summarize what the family said and expose ambivalence.	"I understand that on the one hand you are concerned about how much TV your child watches, but on the other hand, it provides you time to help her brother with his homework."
Provide positive feedback for positive health changes the family has made and empathetic neutral feedback with reflection for less healthy habits.	"Congratulations, your family has done a wonderful job at eating less fast food in the past month. I understand that it is really hard for your child to eat the necessary servings of fruits and vegetables daily because she thinks she doesn't like them."
Set an agenda to discuss a specific and realistic change for a healthier behavior.	"Today we have talked about how your family watches more television and gets less physical activity than you would like. Do you think your family is ready to change one of these things?... Okay, great, I think going for a walk 3 times a week is a wonderful goal."
Offer the family multiple strategies for successfully improving the target behavior.	"Some families find that having the child help to pick out the vegetable at the grocery store or help prepare the vegetables encourages the child to try the new food at mealtime. Other families find that adding different spices or sauces to vegetables makes it more fun for kids to try them."
Provide the family with written information that summarizes the change that they want to make and suggestions for how to make that change. Ensure autonomy.	"So, I just wanted to share with you the healthy goals that you are setting for your family. Of course, it's up to you to make these changes."
Schedule a follow-up visit and emphasize that the goal is to successfully change the target behavior in that time frame, not have a change in weight.	Let's plan to have you come back in 2 months, and I want you to write down all the ways you have tried to be active as a family together between now and then. I know you can do it!

# **Grocery store/ supermarket nutrition education**

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**One activity that may facilitate the achievement of healthful dietary patterns is grocery shopping for healthy foods**

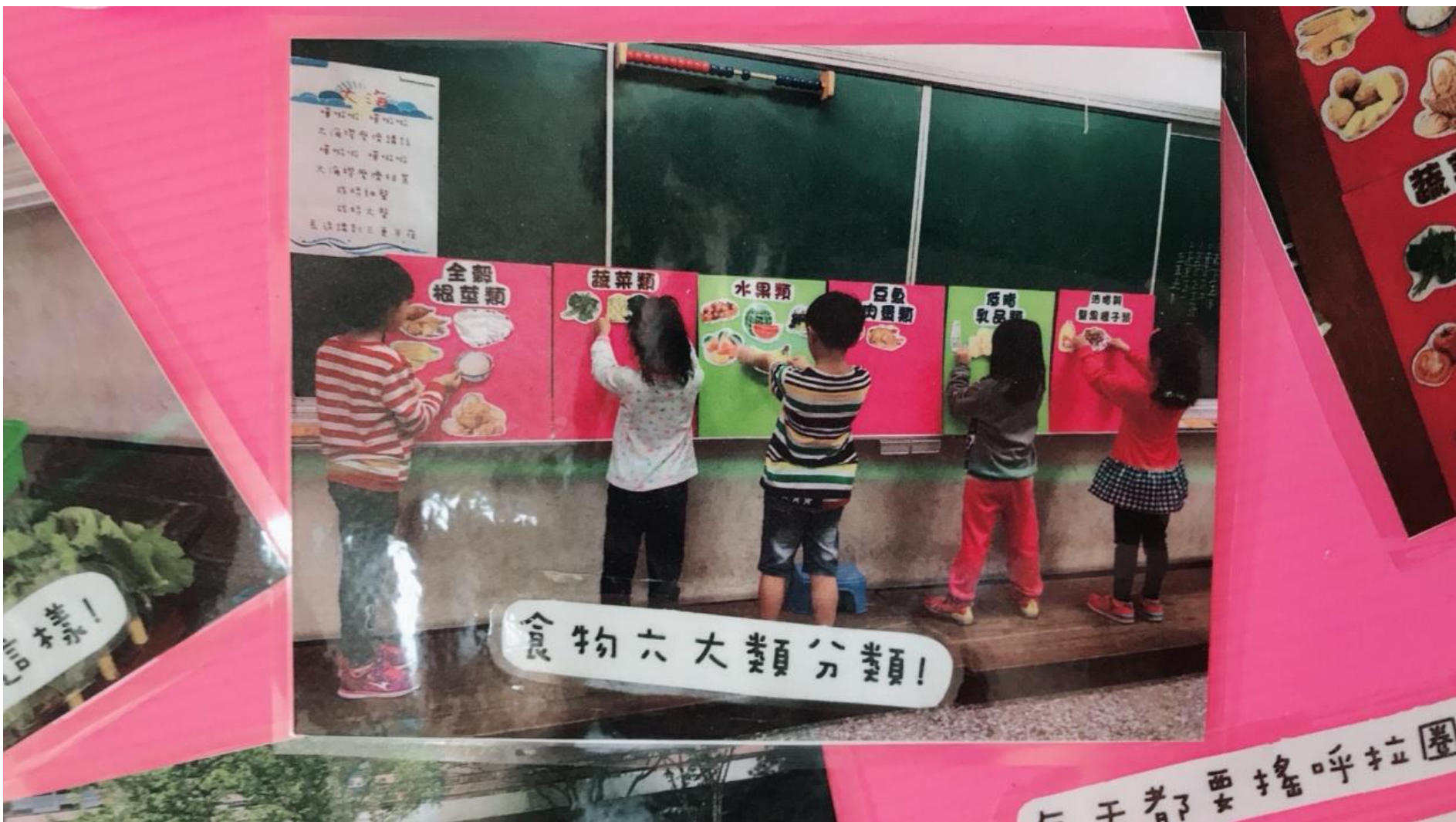
**Do grocery store tours lead to knowledge gains?**

**Do grocery store tours lead to behavior change?**

**What attributes of grocery store tours are associated with health-related outcomes being positively met?**









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划龍舟 看恐龍  
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詳見P.4

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詳見P.12

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**吃多少·買多少**  
/份量剛剛好/

生鮮單筆滿200元  
天天加贈 **20** 福利點 (可累積)  
(活動詳見P.4)

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# 選擇好吃又健康的食物





創造我們自己的飲食金字塔!



## Supermarket Visit

A key part of learning is 'doing' and the PAK'nSAVE, New World or Four Square supermarket visit allows students to apply classroom learning in an interactive setting.



# Tesco launches food education programme

Date Posted: 11/02/2014



It's been well documented that eating habits can be heavily influenced in early childhood. The **Eat Happy food education project**, launched by supermarket giant **Tesco**, will be offered to every Primary school in the UK, with its aim being to help school children have a healthier relationship with food.

First stop: Farm to Fork

<https://www.schooltravelorganiser.com/Features/Tesco-launches-food-education-programme>

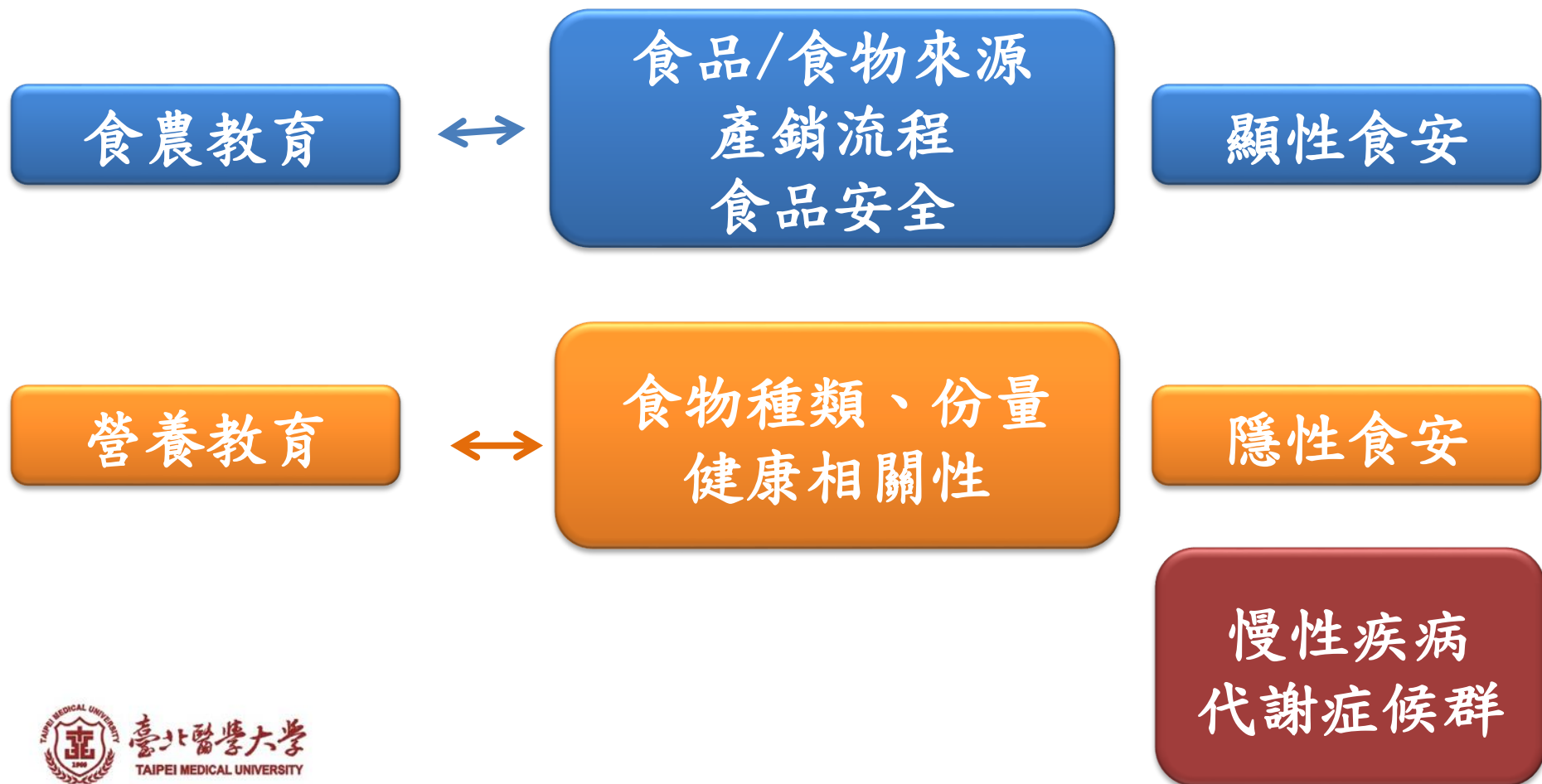




# Supermarkets are great classrooms

Parents can turn a shopping expedition into a learning experience for their children as shown by a group of primary and preschool teachers following a Higher National Diploma Course

By Asoka Weerasinghe



# Garden-based nutrition education

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Garden-based nutrition education programs, which have been evaluated in school, afterschool, and larger community settings, are promising for increasing children's **fruit and vegetable preferences and intakes**

Gardening increased children's access to vegetables and reduced their reluctance to try new foods





# Life skill behaviorally based nutrition education

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Integrating educational messaging with environmental change to make healthy choices easier is essential, as is a focus on programs that teach food purchasing and preparation skills, as well as parenting practices regarding food and activity

The effectiveness of behaviorally based nutrition education across the age groups are needed to reinforce the importance of teaching our children food preparation skills, menu planning, food shopping, and food selection skills

# Life skill behaviorally based nutrition education

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**These skills, previously taught in home economics courses, have largely been phased out of school curricula, and it is time to re-examine their importance as a necessary life skill**

**IOM recommendations for national nutrition-education curriculum standards for prekindergarten through 12th grade are forthcoming and will be important for promoting evidence based academic content and strategies in support of child health promotion and obesity prevention**



