

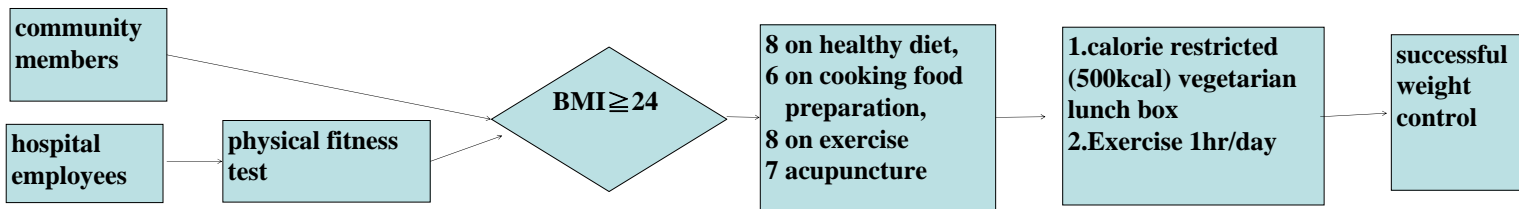
# Integrating diet, exercise and acupuncture interventions to manage overweight and obesity as a mean to reduce chronic disease risk factors and improve health inequality

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**Introduction:** Obesity is an epidemic contributing to major chronic diseases and health inequality. Studies have shown that overweight or obesity is more prevalent among lower social economic classes, who may have less access to health care, and at increased risk for degenerative diseases such as cardiovascular diseases, diabetes, hypertension and cancer. Thus low cost lifestyle interventions targeting reduction of body weight may greatly reduce incidences of chronic diseases and associated health care costs.

**Methods:** As a health promoting hospital, Tzu Chi General Hospital Taipei Branch had launched a healthy lifestyle pilot program, that includes group lessons, 8 on healthy diet, 6 on cooking and food preparation, 8 on exercise, and 7 acupuncture services, led by dietitians, chef, fitness instructors and certified Traditional Chinese Medical doctors respectively. To encourage healthy eating, the hospital cafeteria offered a calorie restricted (500kcal) vegetarian lunch box, featuring low carbon foot print and organic foods, Monday to Friday.



**Results:** Ten hospital employees and twenty community members (8 males, 22 females; age 44.8±11.6), with BMI>24 (mean BMI of 27.6±2.9 kg/m<sup>2</sup>), had enrolled in the program. In seven weeks, the participants have achieved significant improvement on various chronic diseases risk factors: mean body weights had reduced 3.5kg (±2.8; p<0.001) from 72.9 kg, BMI had improved from 27.6 to 26.3 kg/m<sup>2</sup> (p<0.001), 20% had achieved normal weight status, waist circumference had reduced 6.2±5.4 cm (p<0.001) from 93.5 cm, total cholesterol had reduced 13.8±5.4mg/dL (P=0.004) from 187.5mg/dL, triglyceride had reduced 39.7±54.9 mg/dL(31% reduction; p=0.001) from 130.4 mg/dL.

**TABLE 1**  
Anthropometric and biochemical characteristics during follow-up 30 participants

Variable	At inclusion (n=30)	After 7 weeks (n=30)	P
Weight (kg)	72.9 ± 12.9	69.5 ± 11.8	<0.001
BMI (kg/m <sup>2</sup> )	27.6 ± 2.9	26.3 ± 2.8	<0.001
Waist circumference (cm)	93.5 ± 10.4	87.2 ± 8.6	<0.001
Total cholesterol (mg/dL)	187.5 ± 36.2	173.6 ± 30.8	0.004
Triglyceride (mg/dL)	130.4 ± 66.1	90.7 ± 44.7	0.001
BS-AC (mg/dL)	96.2 ± 12.8	95.0 ± 16.3	0.453



healthy diet class



Acupuncture class



Exercise class



cooking food preparation



Exercise 1hr/day



calorie restricted (500kcal) vegetarian lunch box

**Conclusion:** Significant improvement in total cholesterol and body weight and especially waist circumferences and triglyceride, could be achieved in a 7 week program that integrates healthy diet, exercise, and acupuncture. The therapeutic effect of acupuncture for management of abdominal obesity may warrant further investigation. Focuses should be put on long term maintenance.