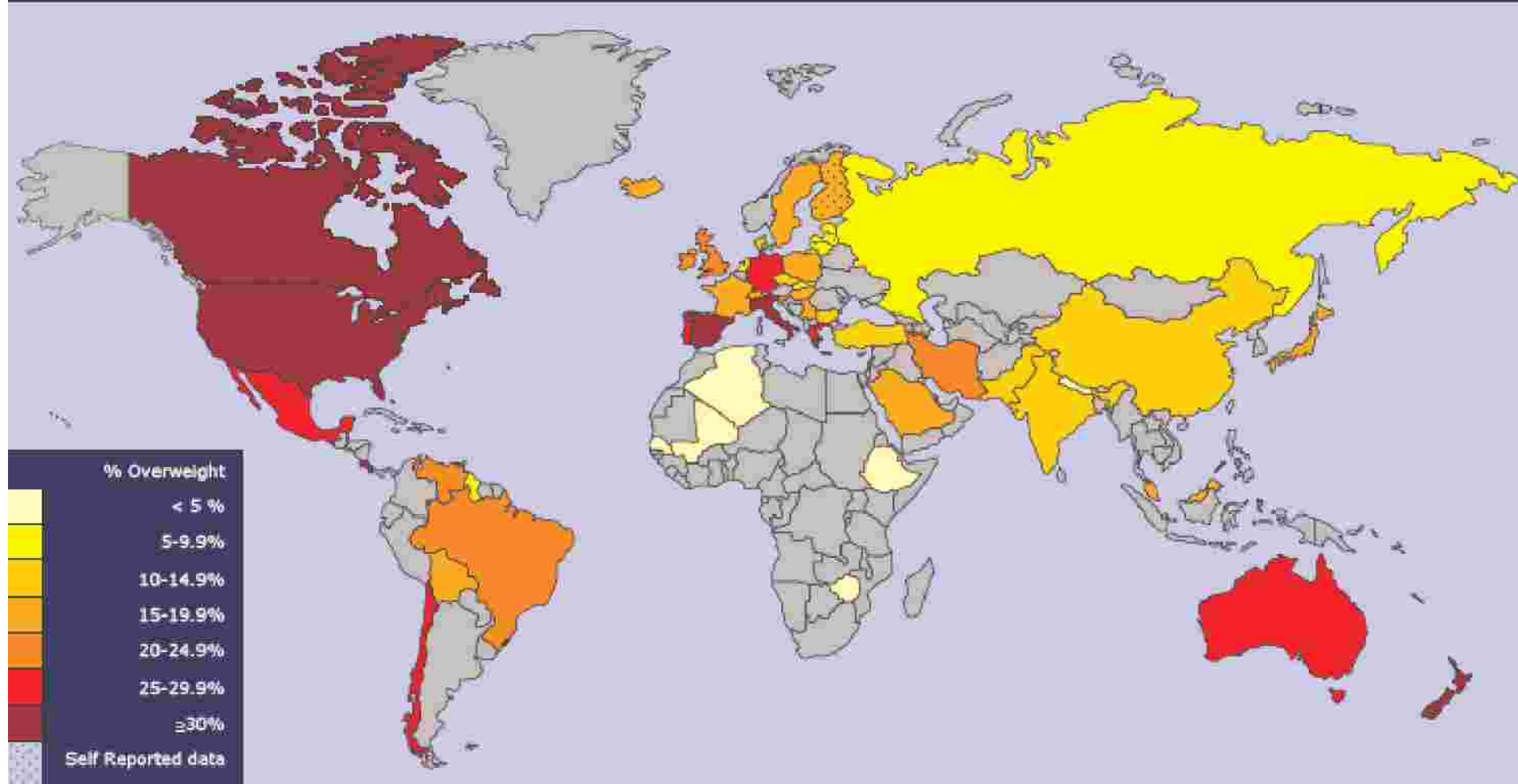


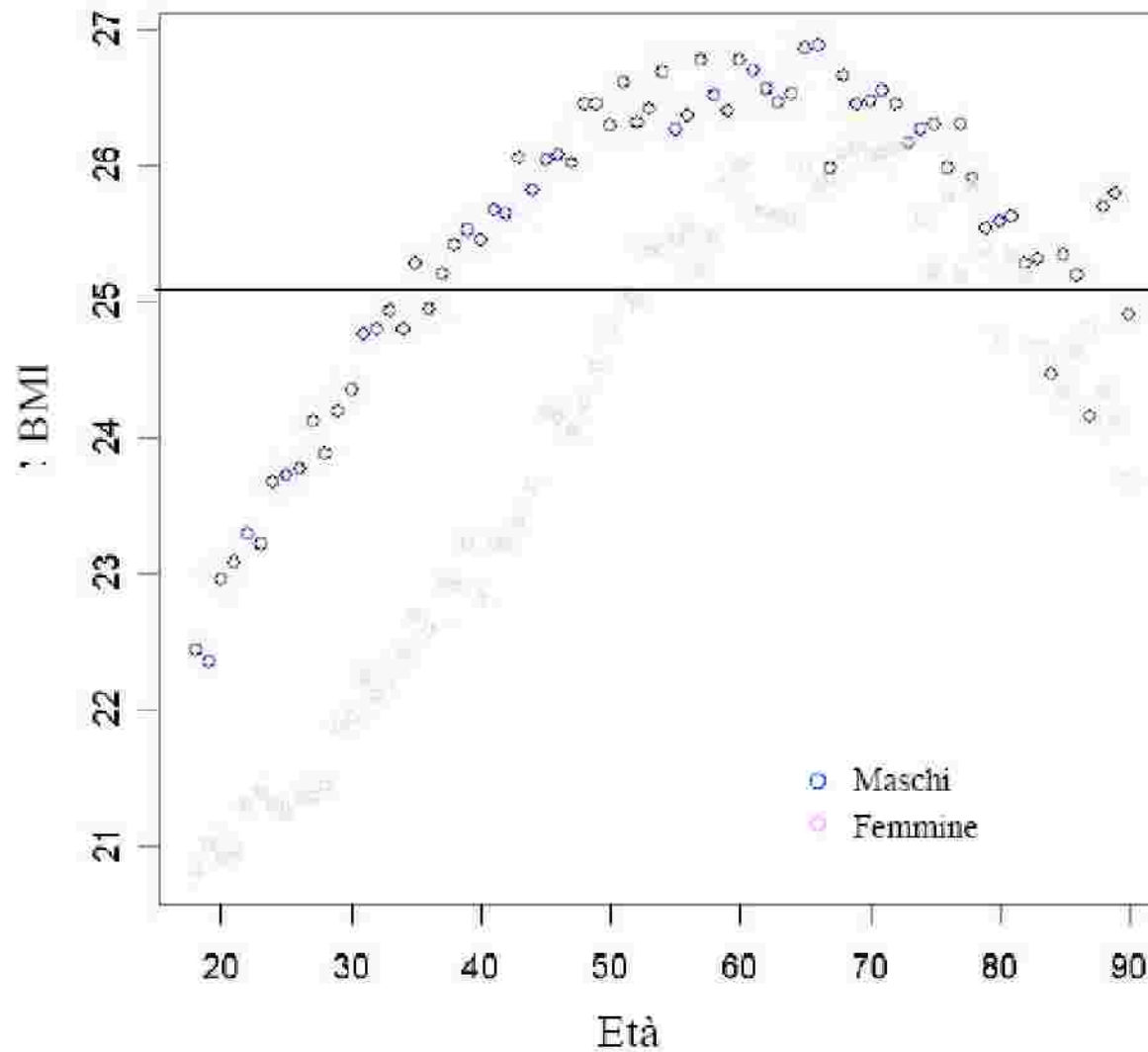
## Classificazione degli Stadi Ponderali

	BMI
Sottopeso	<18.5
Normopeso	18.5-24.9
Sovrappeso	25-29.9
Obesità I grado	30-34.9
Obesità II grado	35-39.9
Obesità III grado	$\geq 40$

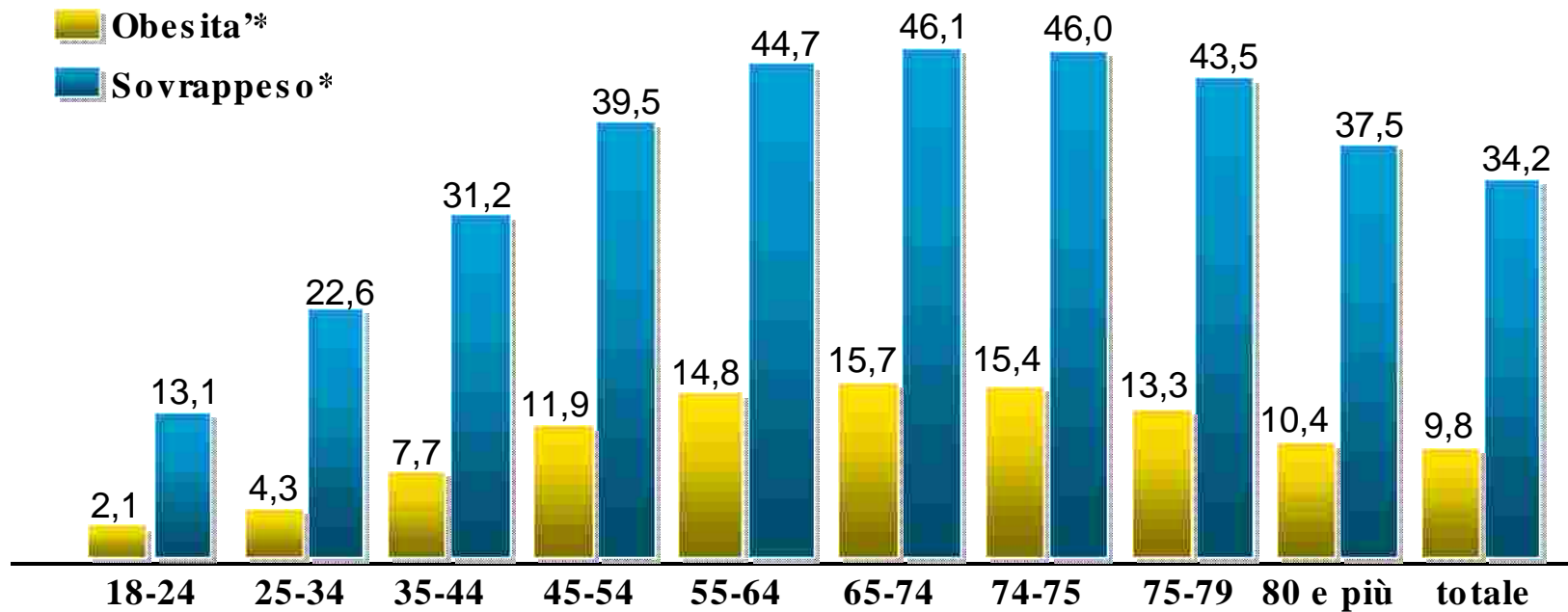
## Global Prevalence of Overweight in Boys 2000-2006



## BMI - Differenze di Genere Indagine Multiscopo ISTAT, 2004



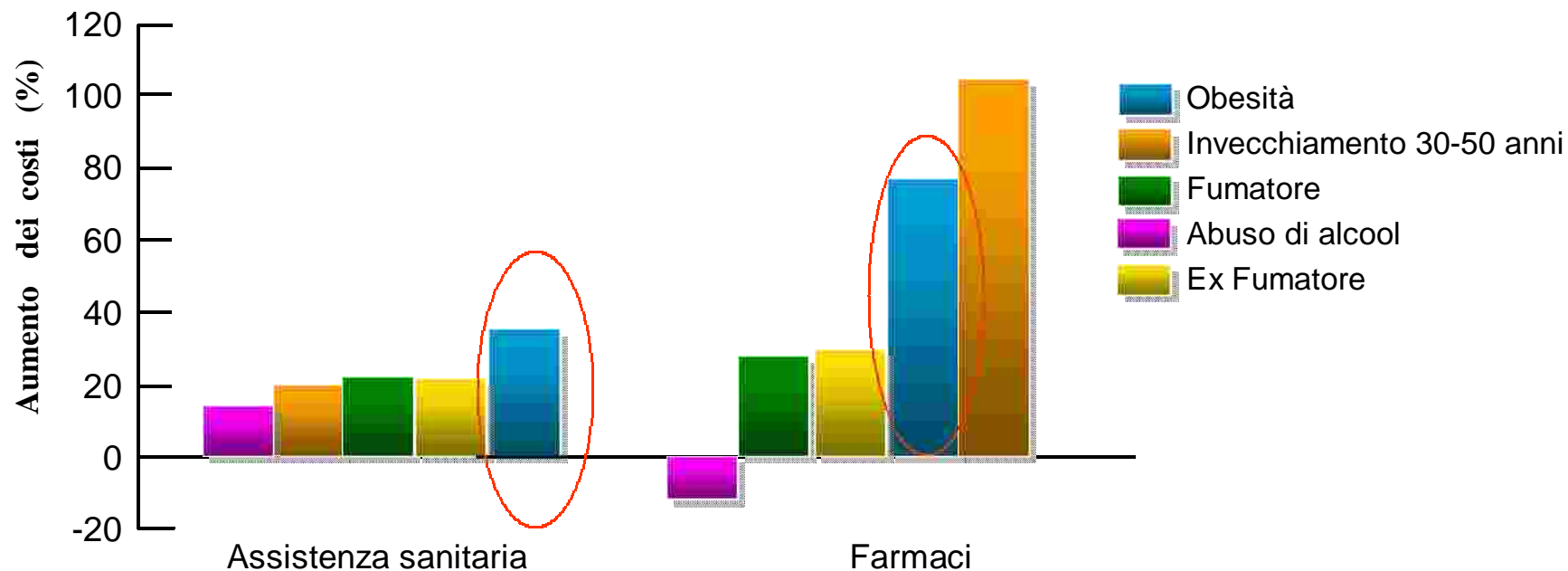
## Distribuzione di obesità e sovrappeso in Italia per classi di età



*\*Per 100 persone dello stesso sesso e classe di età*

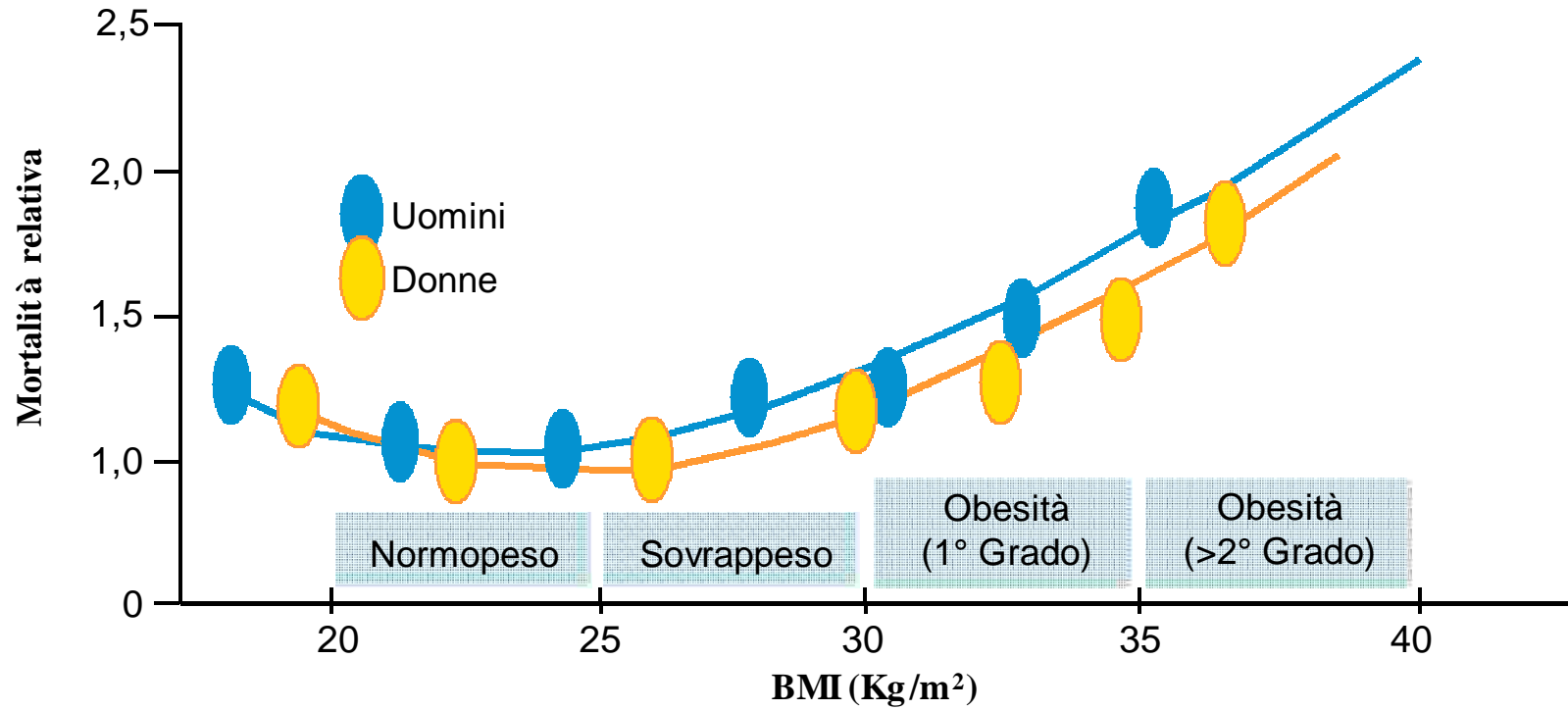
*ISTAT, 2007*

## Aumento dei costi di varie condizioni in termini di assistenza e uso di farmaci








**I costi di assistenza sanitaria dovuti all'obesità sono superiori a quelli dovuti al fumo e all'abuso di alcool. L'obesità costituisce un significativo onere assistenziale**





## Relazione tra mortalità e BMI



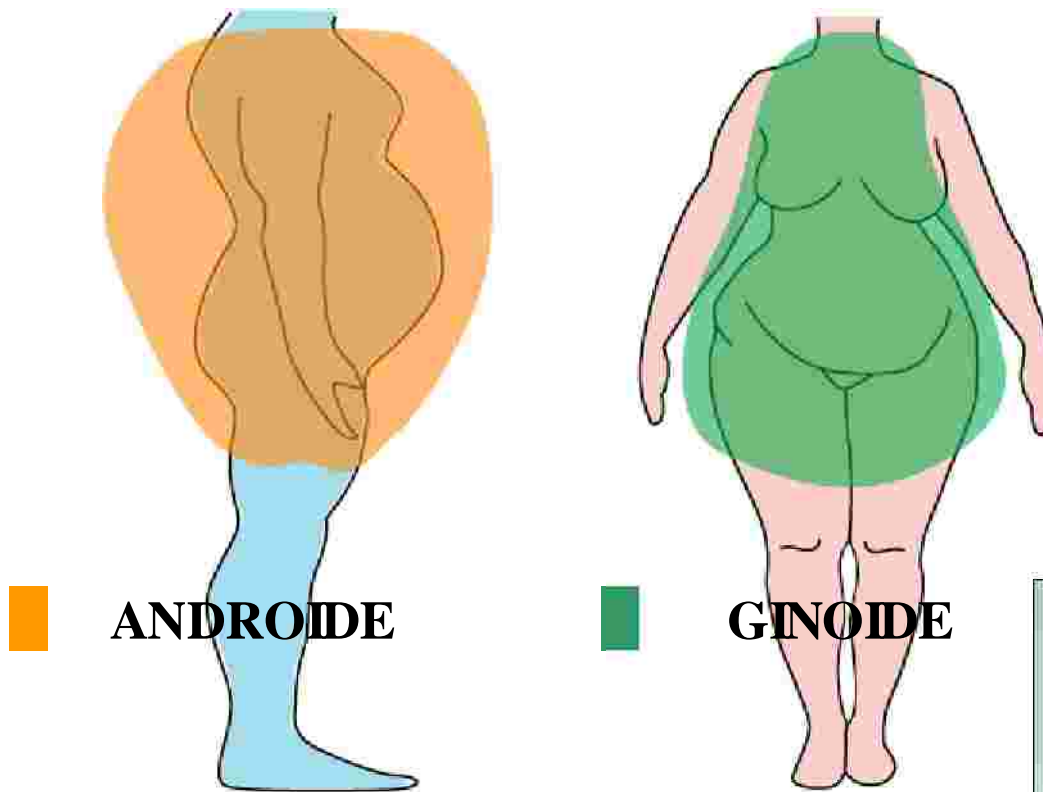
*Lew EA. Ann Intern Med 1985; 103: 1024-9*

## L'obesità si associa a un aumento della morbilità per:

-  Ipertensione
-  Dislipidemia
-  Coronaropatia
-  Diabete di tipo 2
-  Ictus

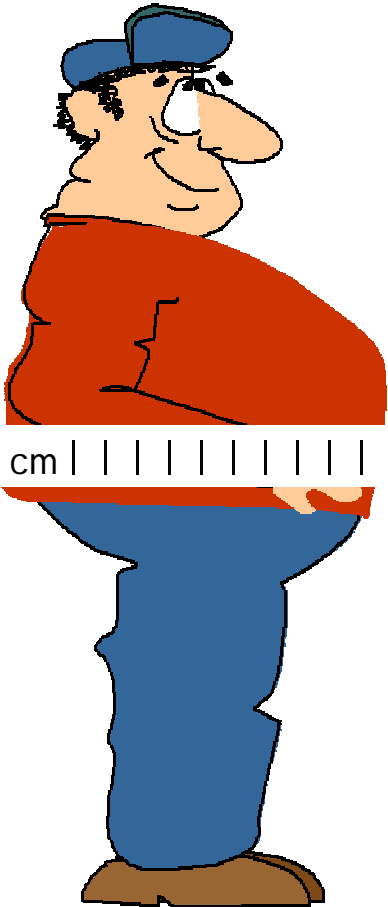
-  Cancro  
*(endometrio, mammella, prostata e colon)*
-  Calcolosi della colecisti
-  Apnea notturna OSAS
-  Osteoartrite

**L'entità del rischio cardiovascolare è correlata all'accumulo di grasso viscerale. L'adiposità viscerale è un fattore predittivo indipendente di complicanze metaboliche e cardiovascolari**

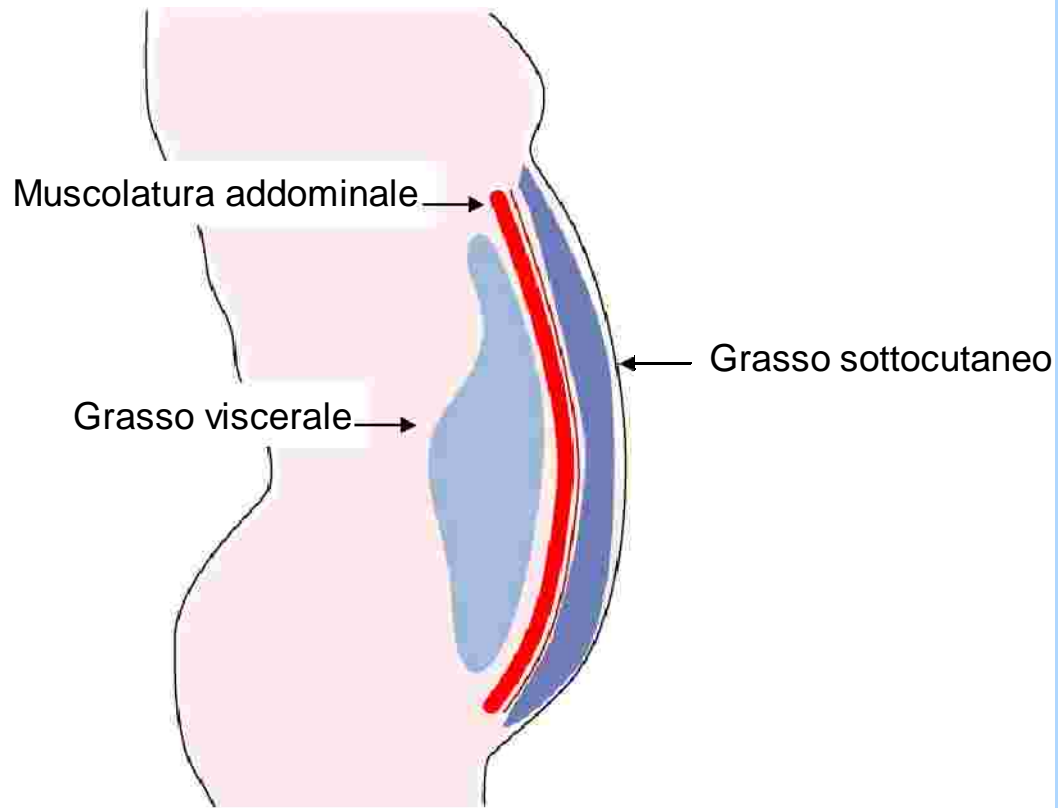




# Waist Circumference



	<b>Circonferenz a vita</b>	<b>Ris chio metabolico</b>
<b>Uomini</b>	<b>=102 cm</b>	<b>Molto aumentato</b>
<b>Donne</b>	<b>=88 cm</b>	<b>Molto aumentato</b>

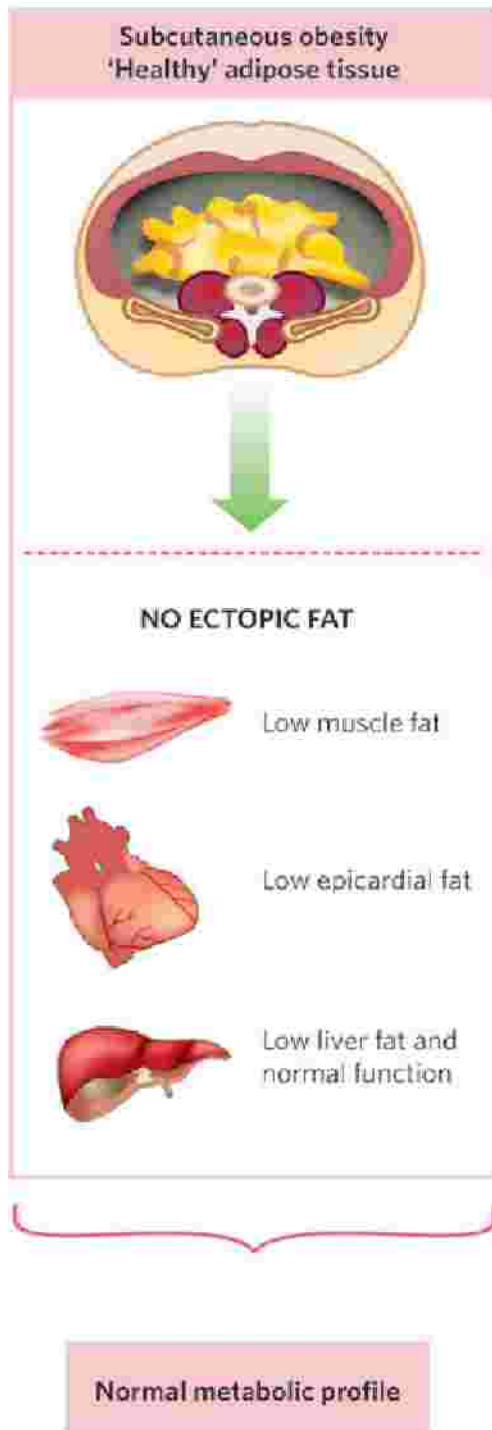


# Fat World

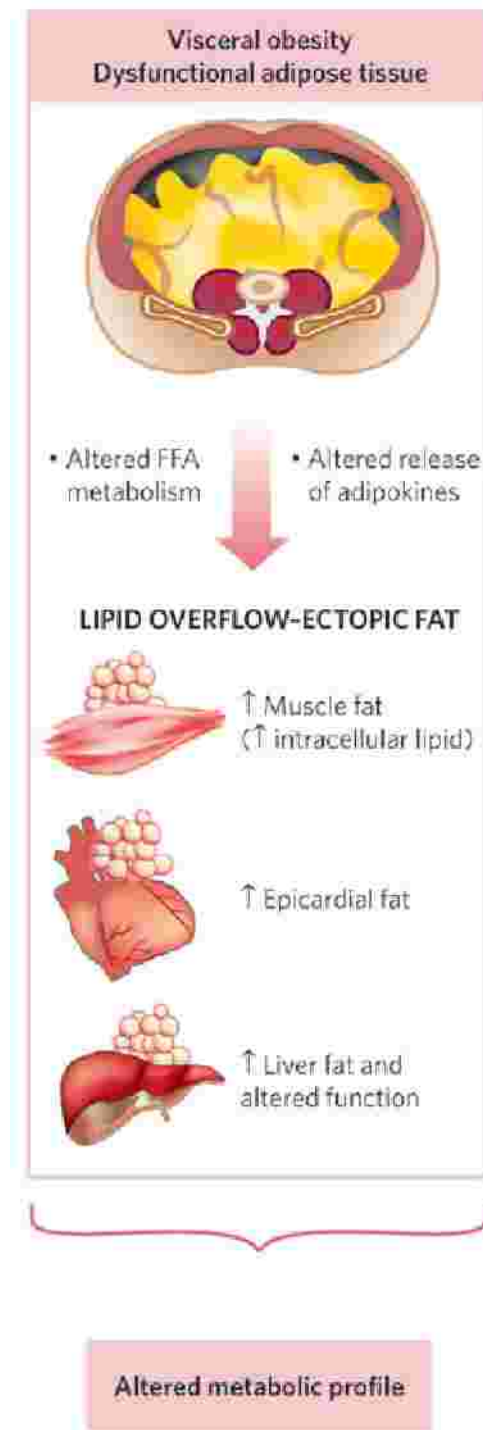
We're Eating More Junk And Getting Less Exercise.

Obesity Is The Globe's Newest Epidemic.

The image shows a woman from the waist up, wearing a white tank top. Her belly is replaced by a realistic image of the Earth, symbolizing the global impact of obesity. The background is a dark blue gradient.

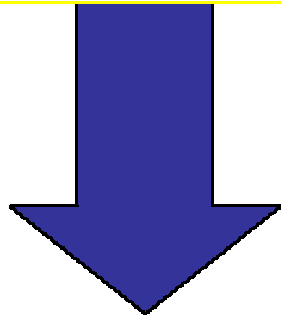


1. **Visceral adiposity**
2. **Increased adipose cell size.**
3. **Decreased insulin sensitivity of fat cells.**
4. **Failure of the storage function of adipose tissue.**
5. **Peripheral lipotoxicity.**
6. **Qualitative and/or quantitative changes in adipokine production.**
7. **Mitochondrial damage and decreased mitochondrial biogenesis.**
8. **Inflammation and macrophage infiltration.**

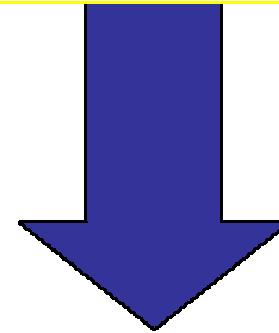


## **L'obesità viscerale si associa ad un cluster di alterazioni metaboliche**

**Ipertrigliceridemia  
Riduzione colesterolo HDL  
Aumento Apo- B  
Incremento di LDL piccole e dense  
Attivazione di infiammazione**



**Insulino- resistenza  
Iperinsulinemia  
Intolleranza al glucosio  
Alterata fibrinolisi  
Disfunzione endoteliale**

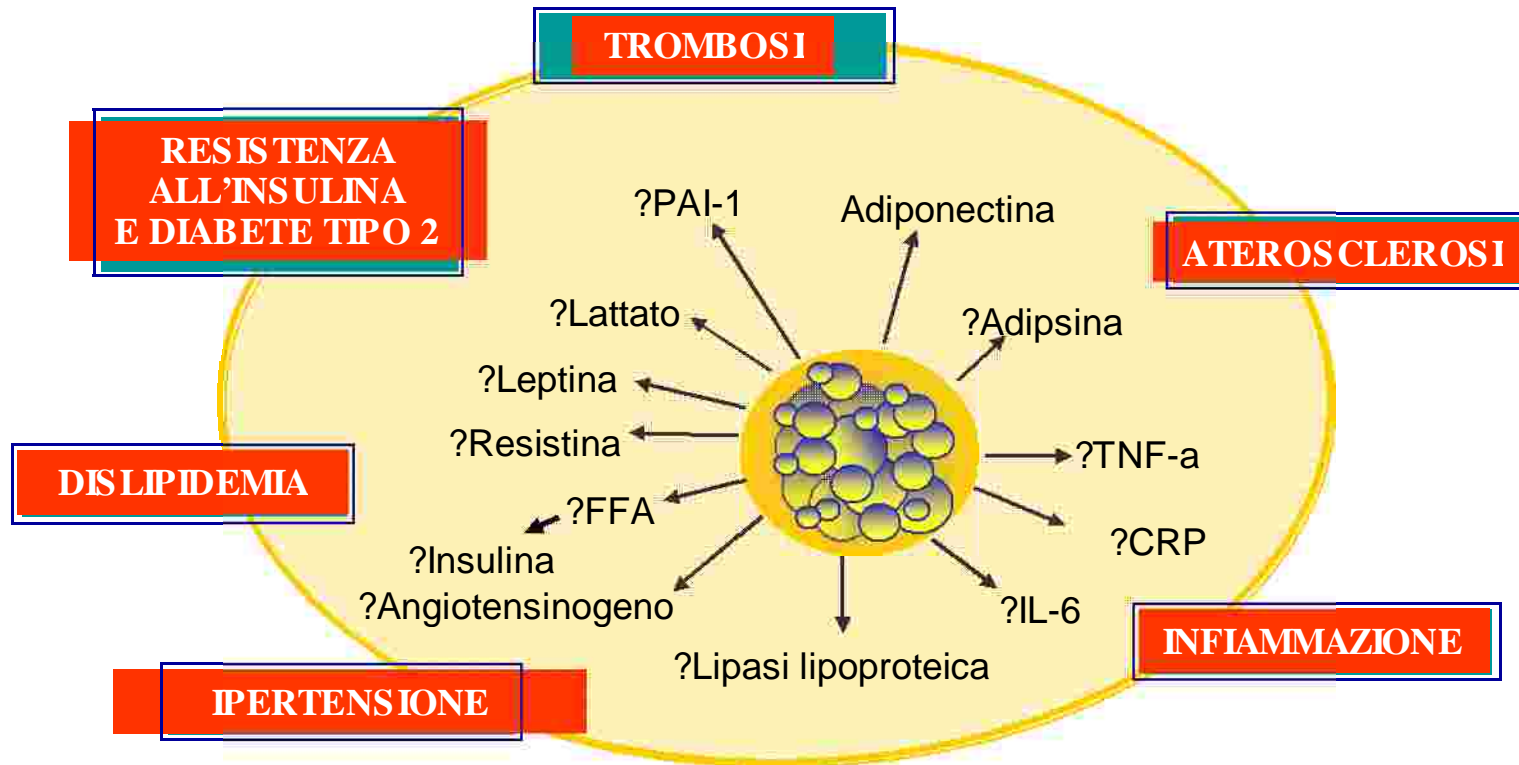


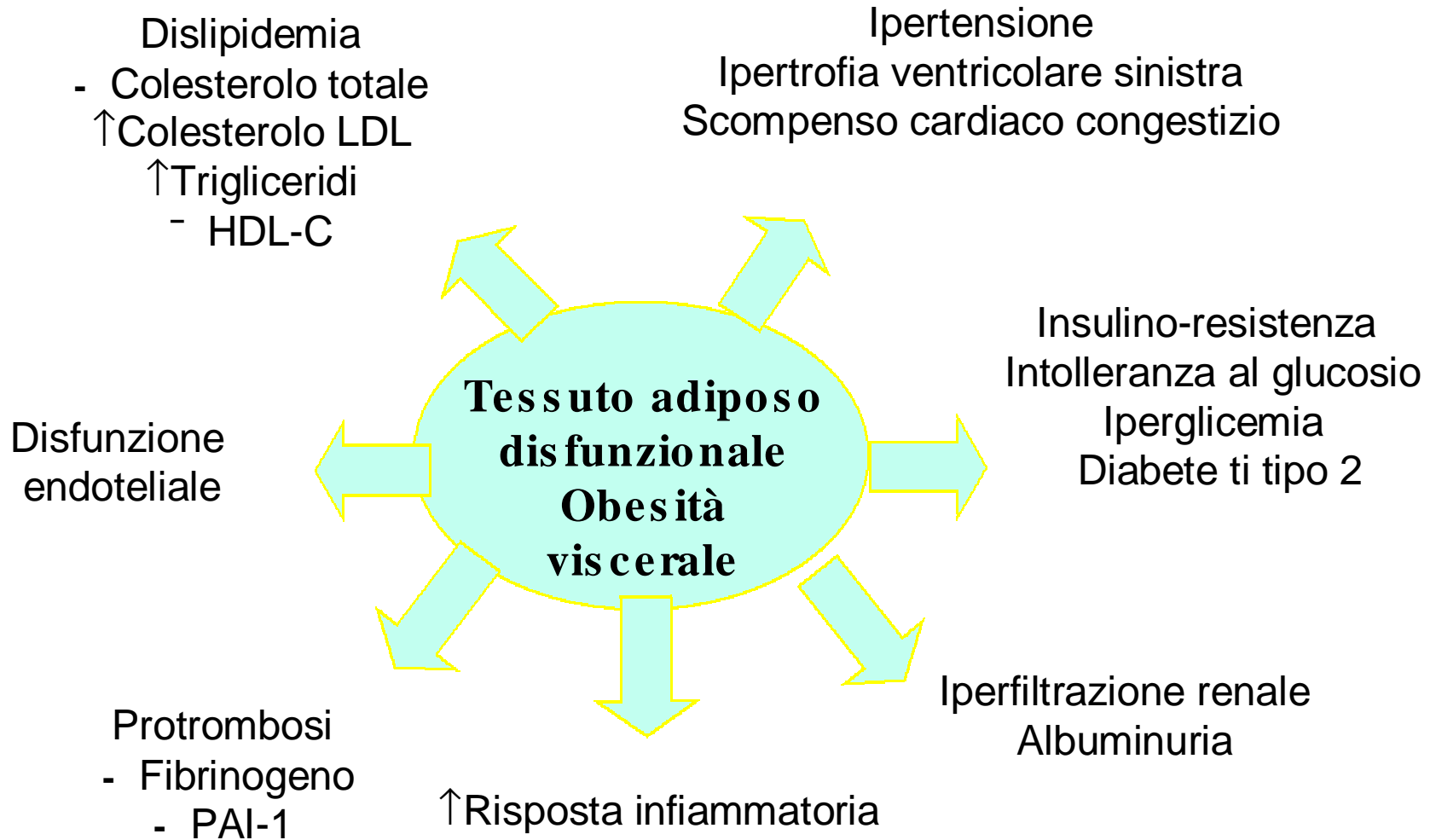
**IGT/DM tipo 2, ipertensione  
arteriosa, patologie cardiovascolari**

Obesità addominale e rischio cardiovascolare e metabolico

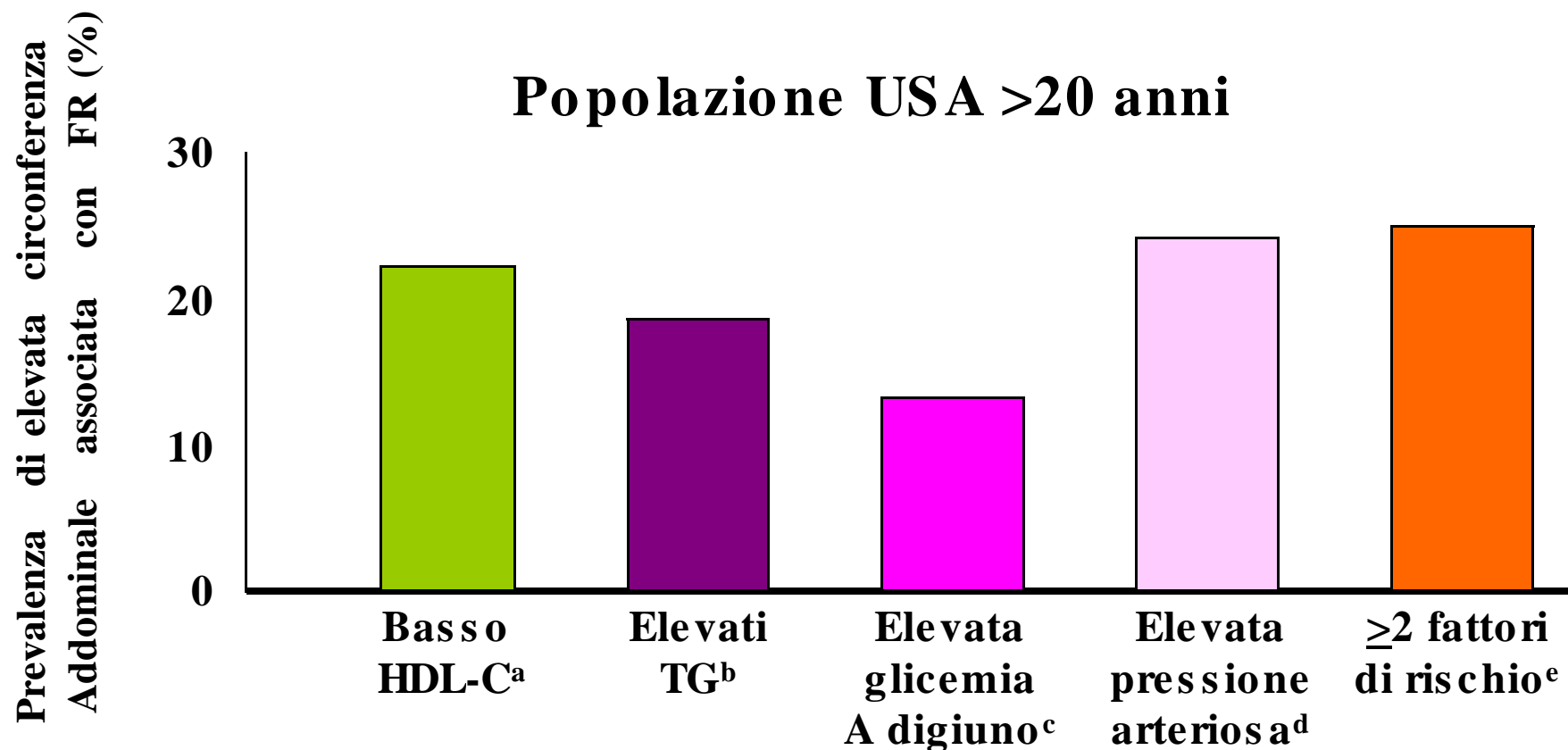
**Il tessuto adiposo è un organo endocrino  
che sintetizza ormoni e sostanze bioattive.**

**La loro azione biologica è implicata nella patogenesi  
del danno cardiovascolare**





L'elevata circonferenza addominale é associata alla presenza di fattori di rischio cardiovascolari multipli



<sup>a</sup><40 mg/dL (uomini) o <50 mg/dL (donne); <sup>b</sup>>150 mg/dL; <sup>c</sup>>110 mg/dL;  
<sup>d</sup>>130/85 mmHg; <sup>e</sup>def. sindrome metabolica NCEP/ATP III

## Rischio di IM nello studio InterHeart

Fattore di rischio	% Controlli	% Casi	OR aggiustato <sup>a</sup>
Lipidi (Apo B/Apo A-1)	20.0	33.5	3.87
Fumatore attivo	26.8	45.2	2.95
Diabete	7.5	18.4	3.08
Ipertensione	21.9	39.0	2.48
<b>Obesità addominale</b>	<b>33.3</b>	<b>46.3</b>	<b>2.22</b>
Psicosociale	-	-	2.51
Consumo quotidiano frutta/verdura	42.4	35.8	0.70
Esercizio fisico	19.3	14.3	0.72
Consumo di alcol	24.5	24.0	0.79

<sup>a</sup>Aggiustato per età, sesso, fumo; <sup>b</sup>vita/fianchi rapporto



# Trattamento dell'Obesità

- Obiettivo del trattamento dell'obesità e del sovrappeso è **raggiungere e mantenere il calo ponderale utile per la riduzione del rischio di mortalità e morbilità dovuto alle patologie associate**
- I protocolli terapeutici prevedono:
  - Dieta ipocalorica
  - Esercizio fisico
  - Interventi psicocomportamentali
  - Terapia farmacologica
  - Eventuale terapia chirurgica

## La perdita di peso determina una serie di benefici clinici

ENTITÀ DI CALO PONDERALE	MIGLIORAMENTO CLINICO ATTESO
<5%	Miglioramento del profilo di rischio cardiovascolare
=5%	<ul style="list-style-type: none"><li>Prevenzione del diabete</li><li>Miglioramento della QoL</li><li>Miglioramento dei sintomi (es. osteoartrite del ginocchio)</li></ul>
=10%	<ul style="list-style-type: none"><li>Miglioramento delle apnee notturne</li><li>Miglioramento della funzione respiratoria nel paziente asmatico</li><li>Riduzione della mortalità</li></ul>

## Guide for Selecting Obesity Treatment

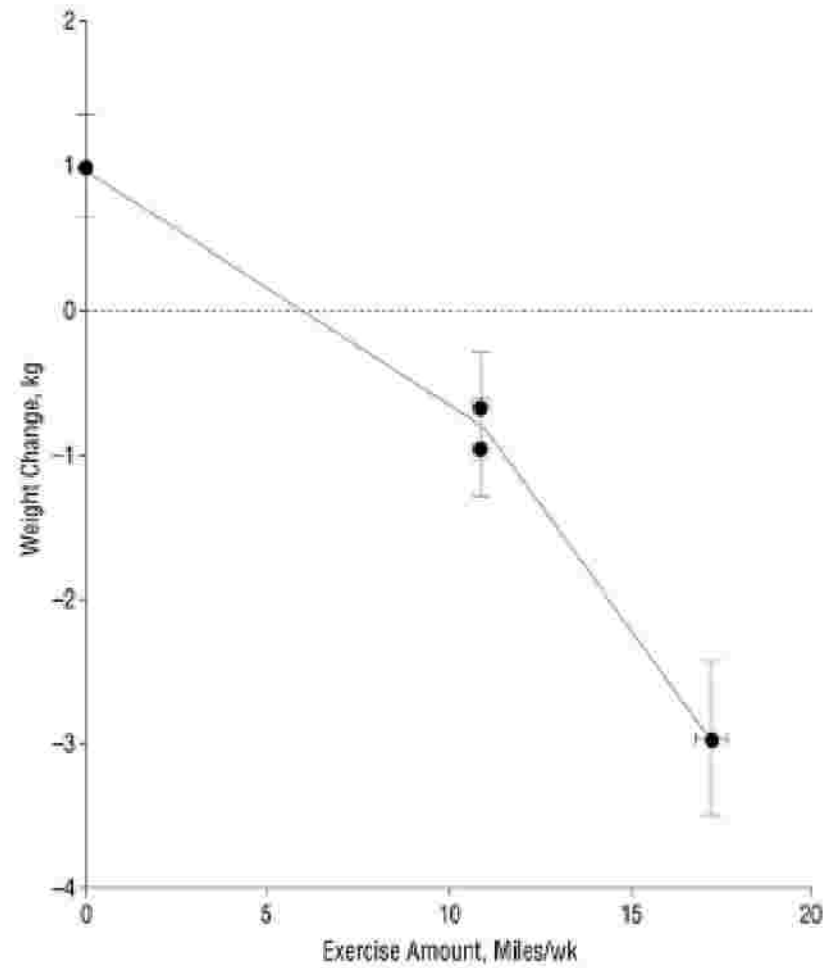
Treatment	BMI Category (kg/m <sup>2</sup> )				
	25-26.9	27-29.9	30-34.9	35-39.9	≥40
Diet, Exercise, Behavior Tx	+	+	+	+	+
Pharmaco- therapy		With co- morbidities	+	+	+
Surgery				With co- morbidities	+

The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. October 2000, NIH Pub. No. 00-4084

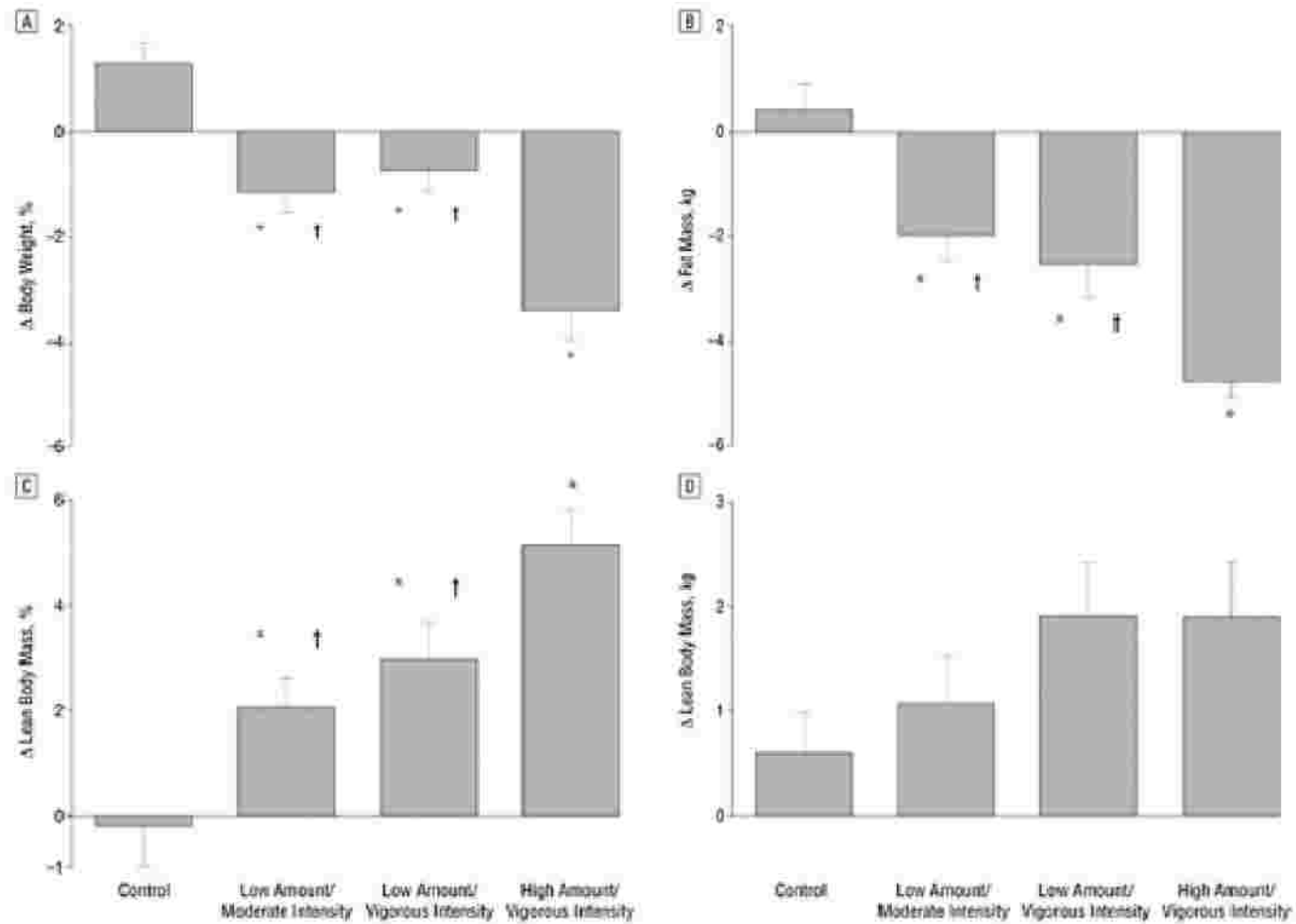
Source:  
Obesity Centre Slide Library  
[www.obesitycentre.org](http://www.obesitycentre.org)

# Relazione tra perdita di peso e volume di attività fisica

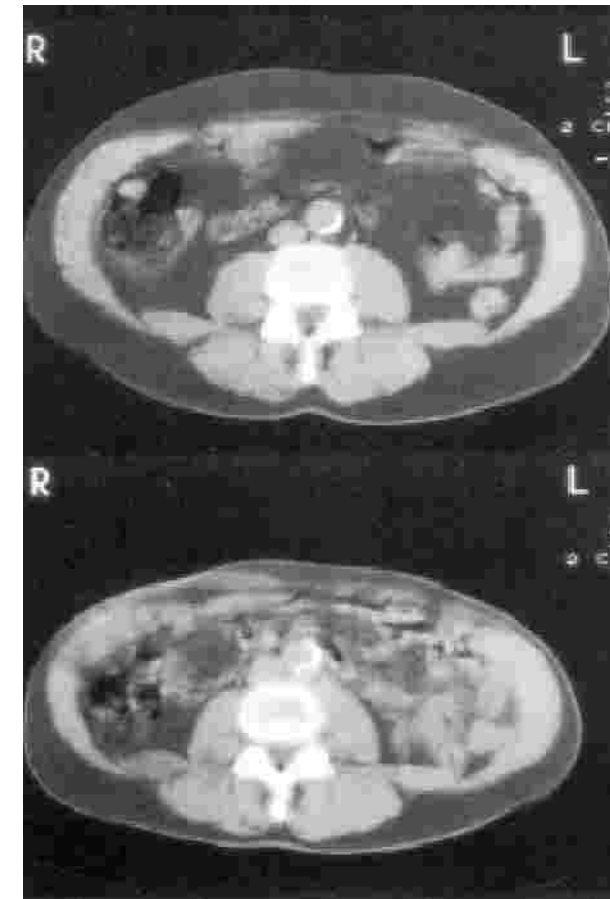
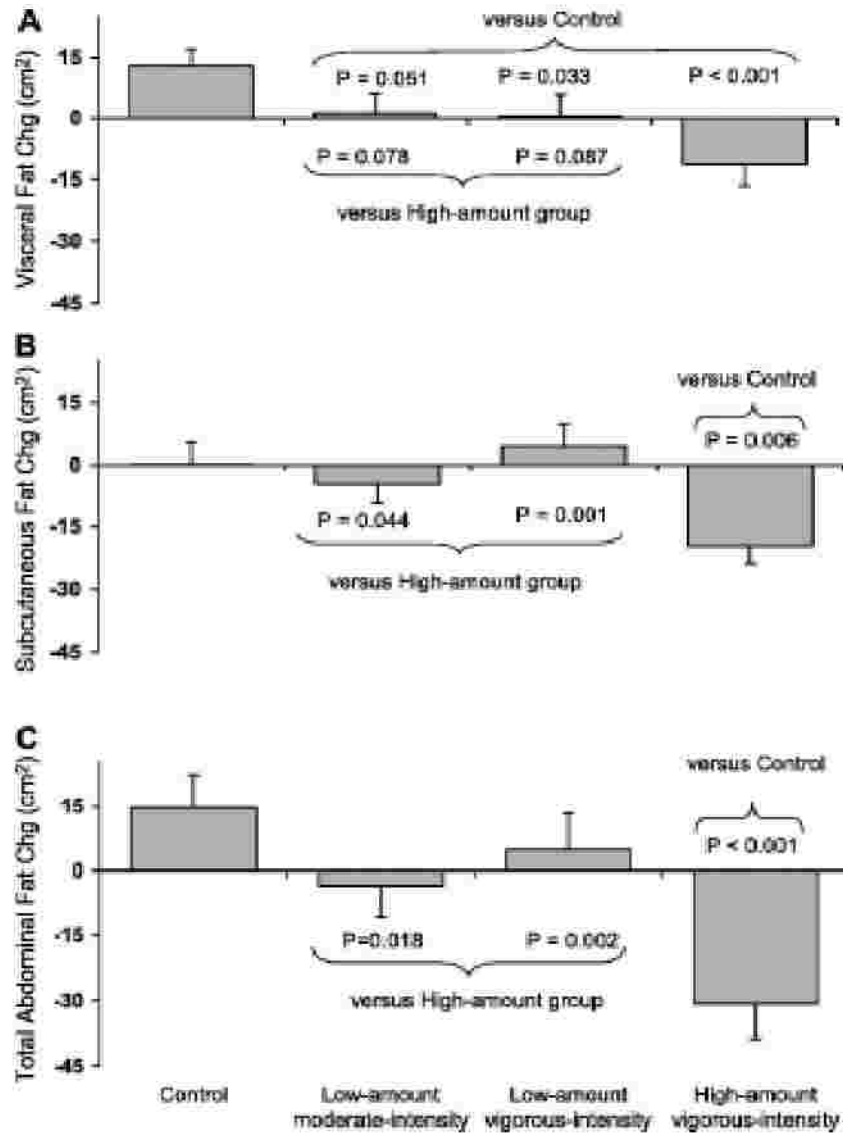
Slentz,CA Arch Intern Med 2004



# Effetti dell'intensità di esercizio sulla composizione corporea



## Confronto tra 3 differenti programmi di esercizio fisico su Grasso Viscerale, Sottocutaneo e Addominale



Slentz CA, J Appl Physiol 2005

# Exercise for overweight or obesity

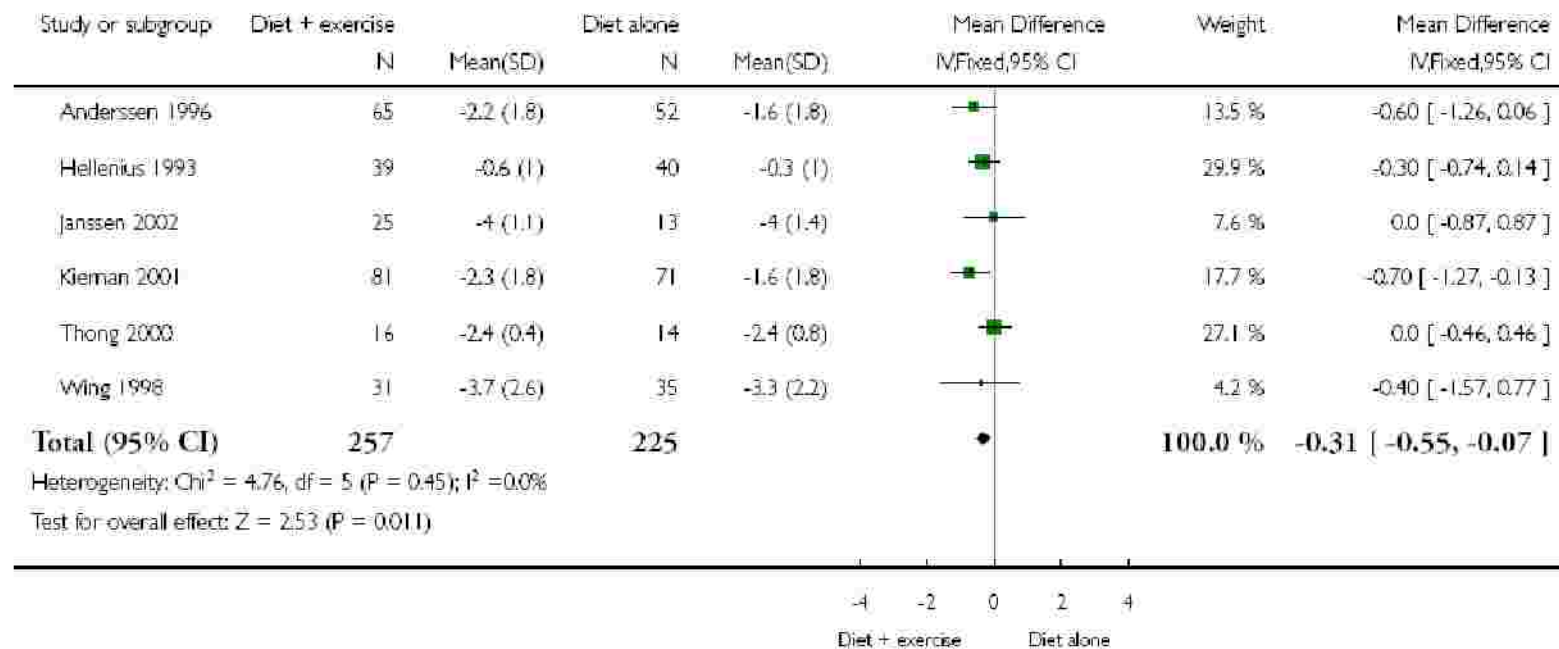
## Cochrane Review

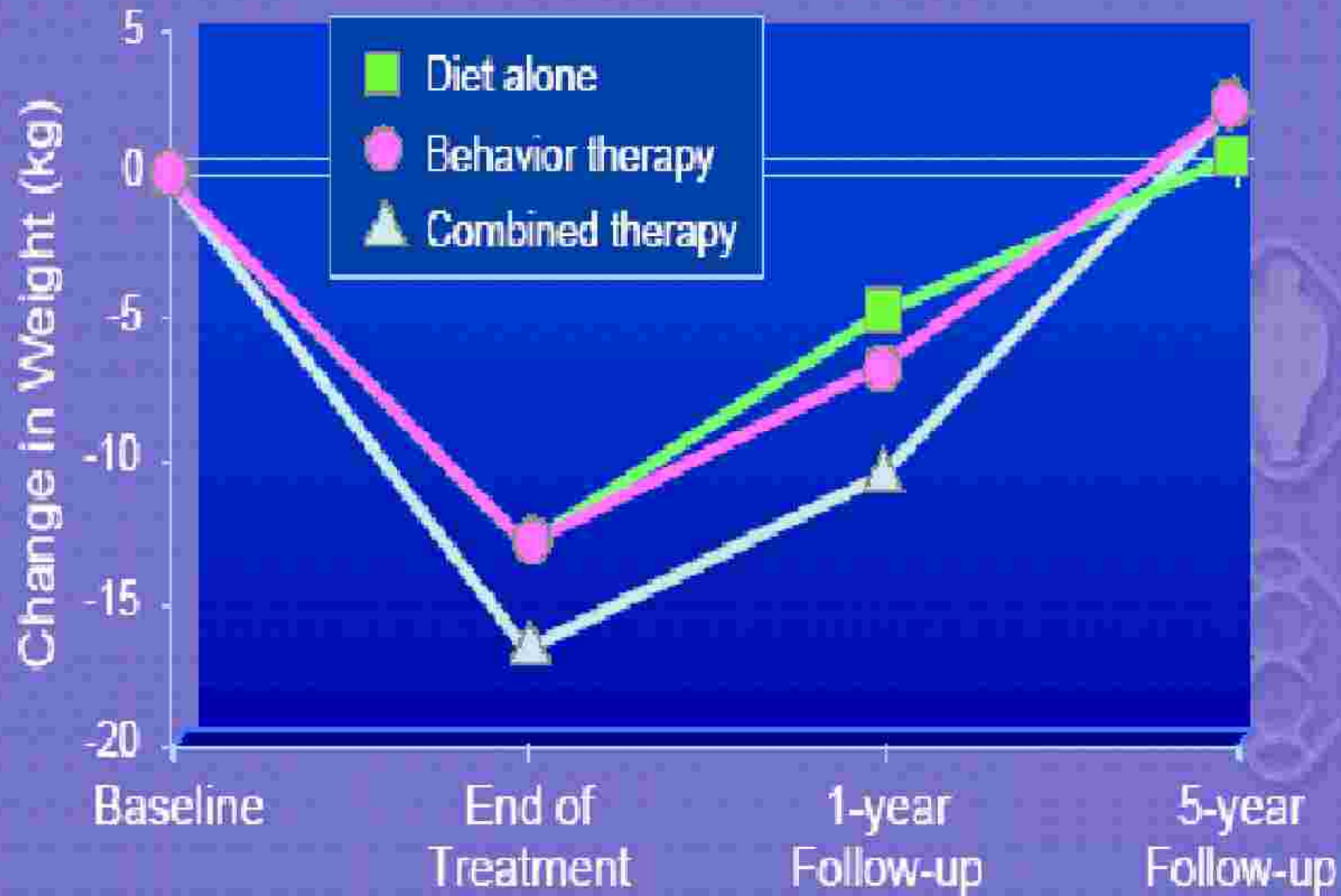
### Analysis 3.2. Comparison 3 Exercise + diet versus diet alone, Outcome 2 Change in body mass index (BMI).

Review: Exercise for overweight or obesity

Comparison: 3 Exercise + diet versus diet alone

Outcome: 2 Change in body mass index (BMI)





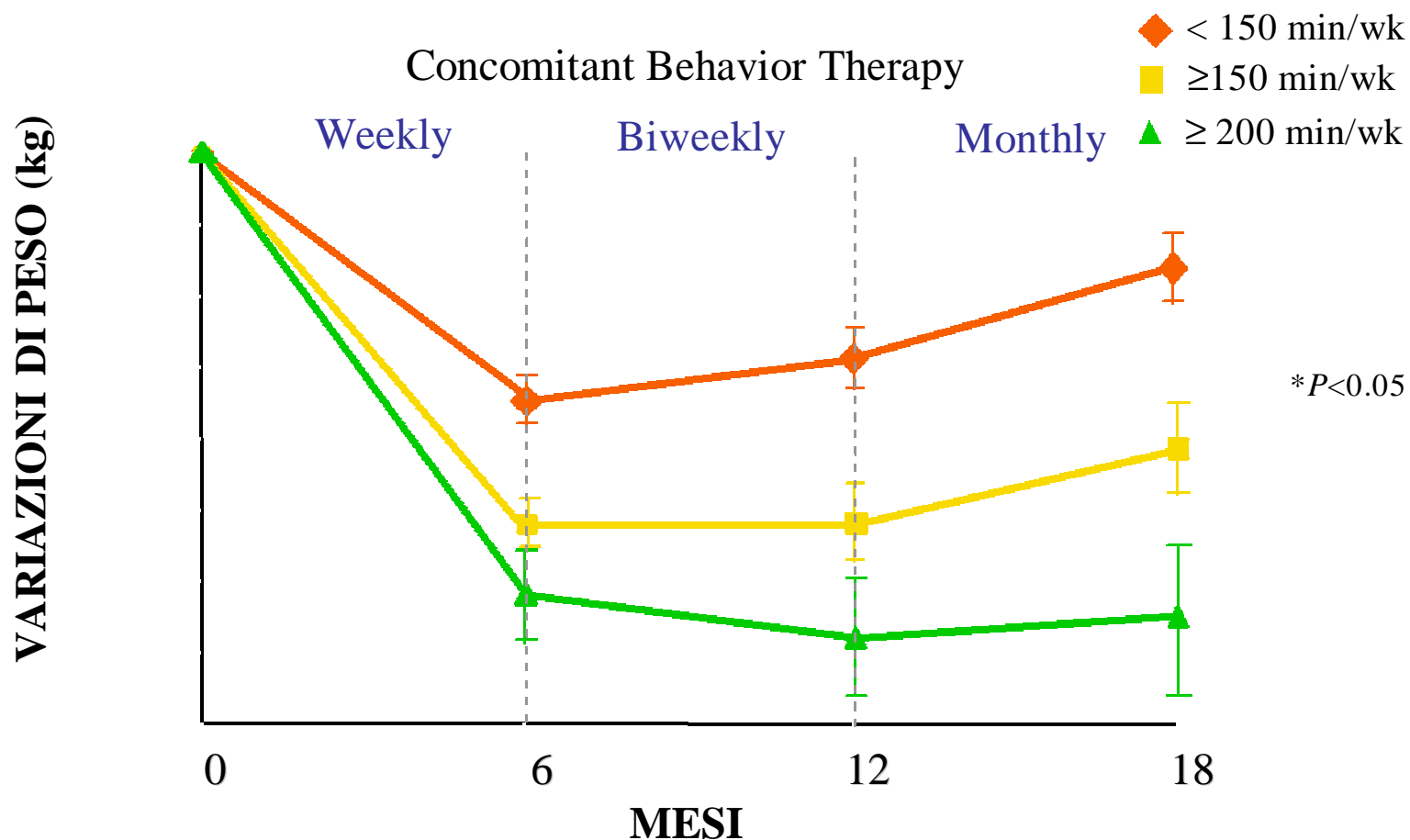
Wadden et al. *Int J Obes* 1989;13 (Suppl 2):39.

Slide Source:  
[www.obesityonline.org](http://www.obesityonline.org)



# Percentuale del cambiamento di peso rispetto alla durata dell'esercizio

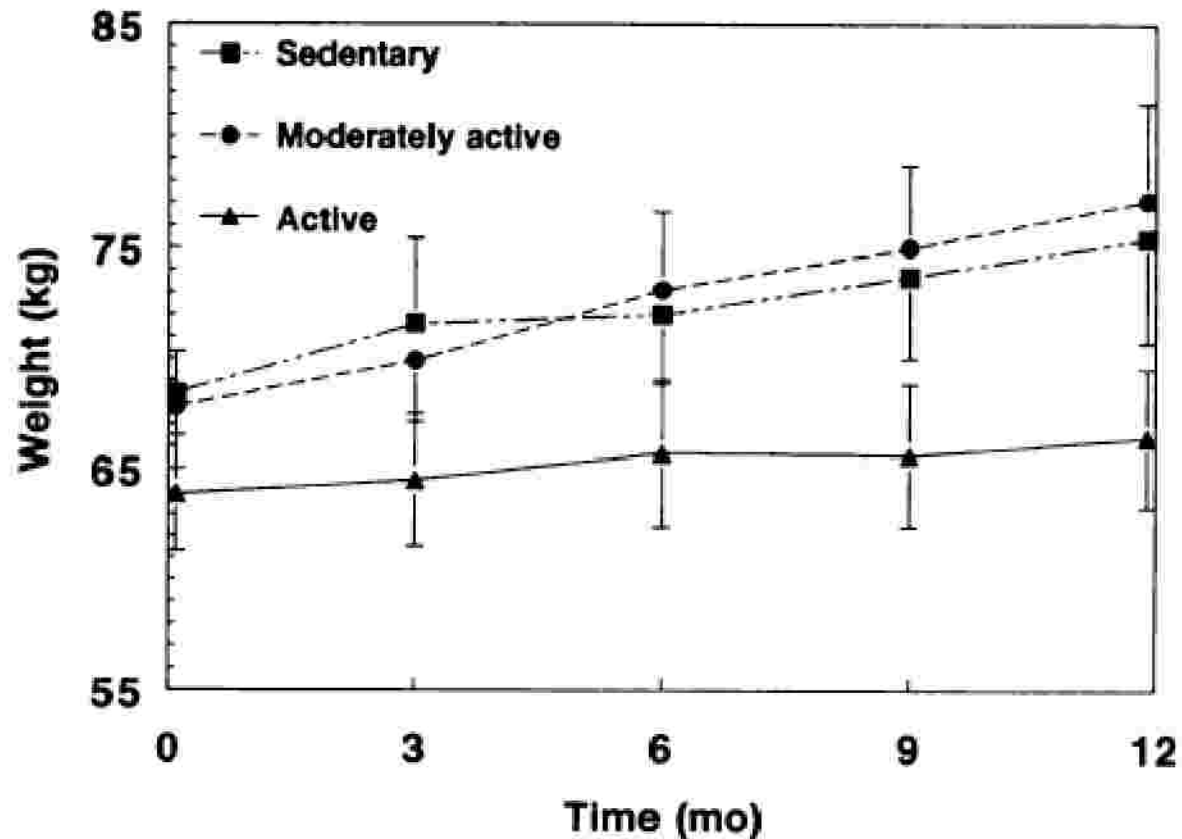
Jakicic at al, JAMA 2003



Esercizio fisico è fondamentale per mantenere la perdita di peso a lungo termine

# How much physical activity is needed to minimize weight gain in previously obese women?<sup>1-3</sup>

Dale A Schoeller, Kathyjo Shay, and Robert F Kushner



**FIGURE 1.** Mean ( $\pm$  SEM) body weights in three groups of previously obese women in the year after completion of weight loss. Time-group interaction, ANOVA, and post hoc *t* testing indicated that increases in weight were less in active women (TEE:RMR  $>$  1.75).

## REVIEW

# The definition of weight maintenance

J Stevens<sup>1,2</sup>, KP Truesdale<sup>2</sup>, JE McClain<sup>1</sup> and J Cai<sup>3</sup>

<sup>1</sup>Department of Nutrition, School of Public Health, University of North Carolina, Chapel Hill, NC, USA; <sup>2</sup>Department of Epidemiology, School of Public Health, University of North Carolina, Chapel Hill, NC, USA and <sup>3</sup>Department of Biostatistics, School of Public Health, University of North Carolina, Chapel Hill, NC, USA

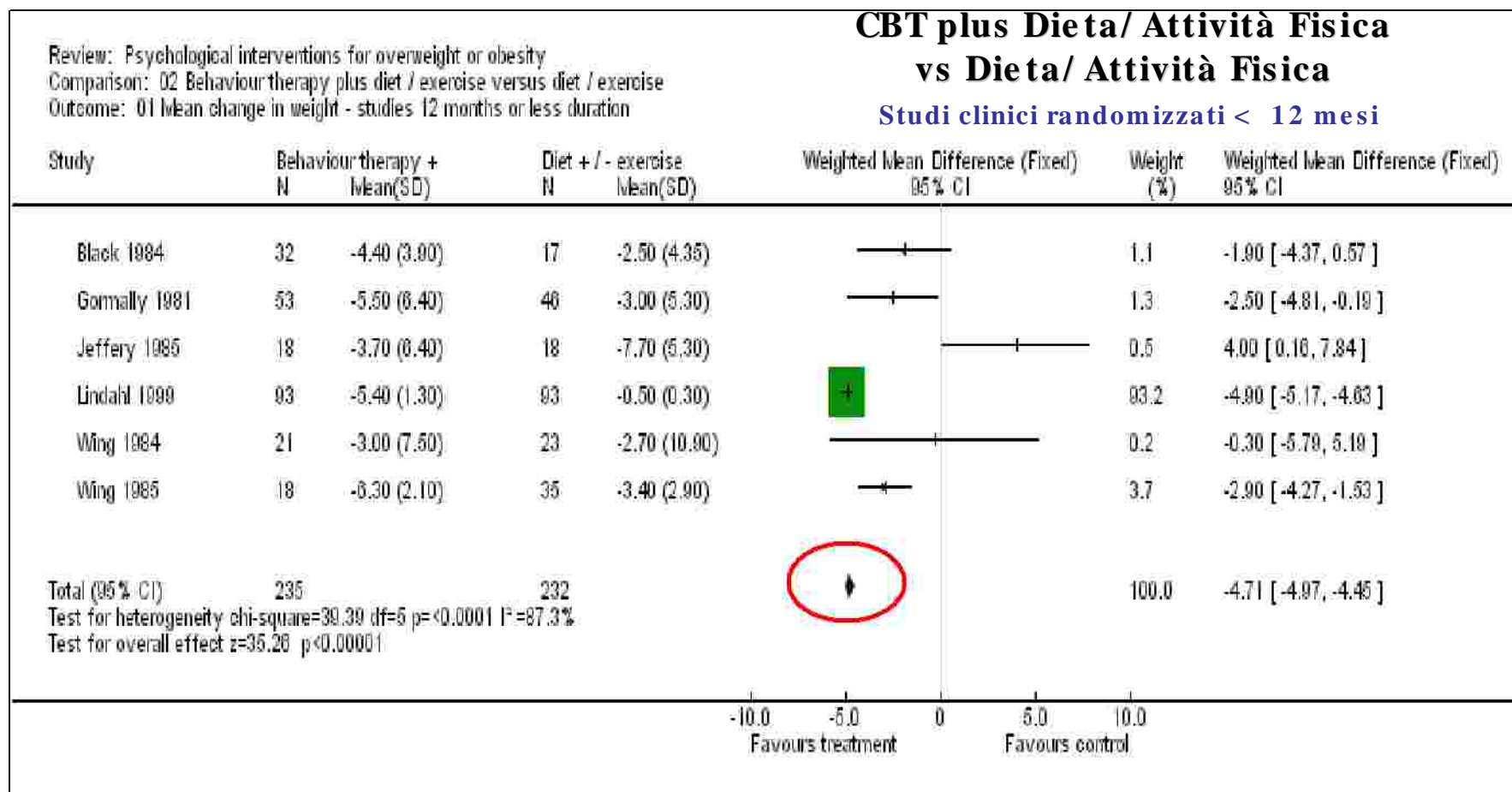
There is currently no consensus on the definition of weight maintenance in adults. Issues to consider in setting a standard definition include expert opinion, precedents set in previous studies, public health and clinical applications, comparability across body sizes, measurement error, normal weight fluctuations and biologic relevance. To be useful, this definition should indicate an amount of change less than is clinically relevant, but more than expected from measurement error or fluctuations in fluid balance under normal conditions. It is an advantage for the definition to be graded by body size and to be easily understood by the public as well as scientists. Taking all these factors into consideration, the authors recommend that long-term weight maintenance in adults be defined as a weight change of <3% of body weight.

*International Journal of Obesity* (2006) 30, 391–399. doi:10.1038/sj.ijo.0803175; published online 22 November 2005

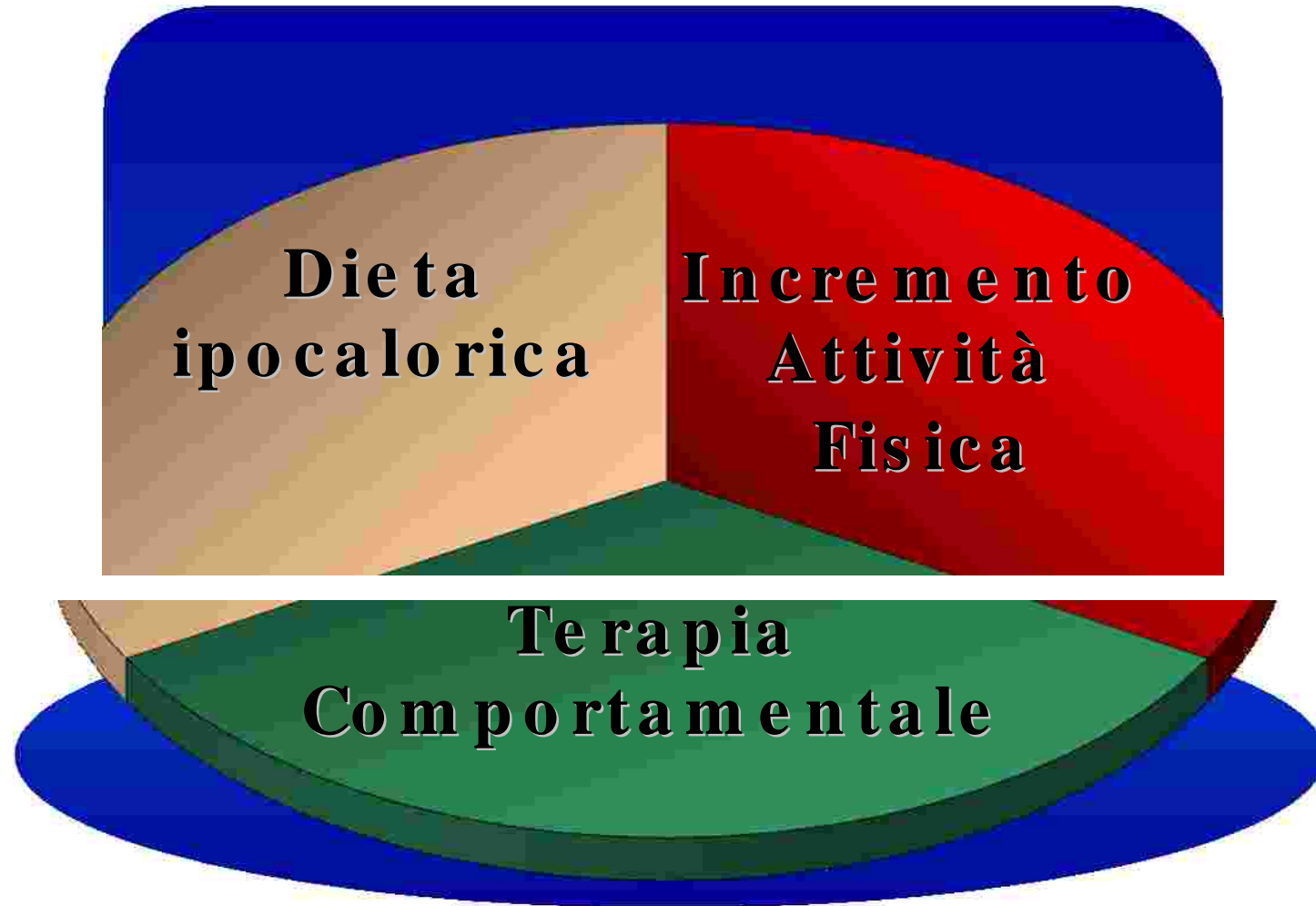
# Psychological interventions for overweight or obesity

K Shaw, P O'Rourke, C Del Mar, J Kenardy

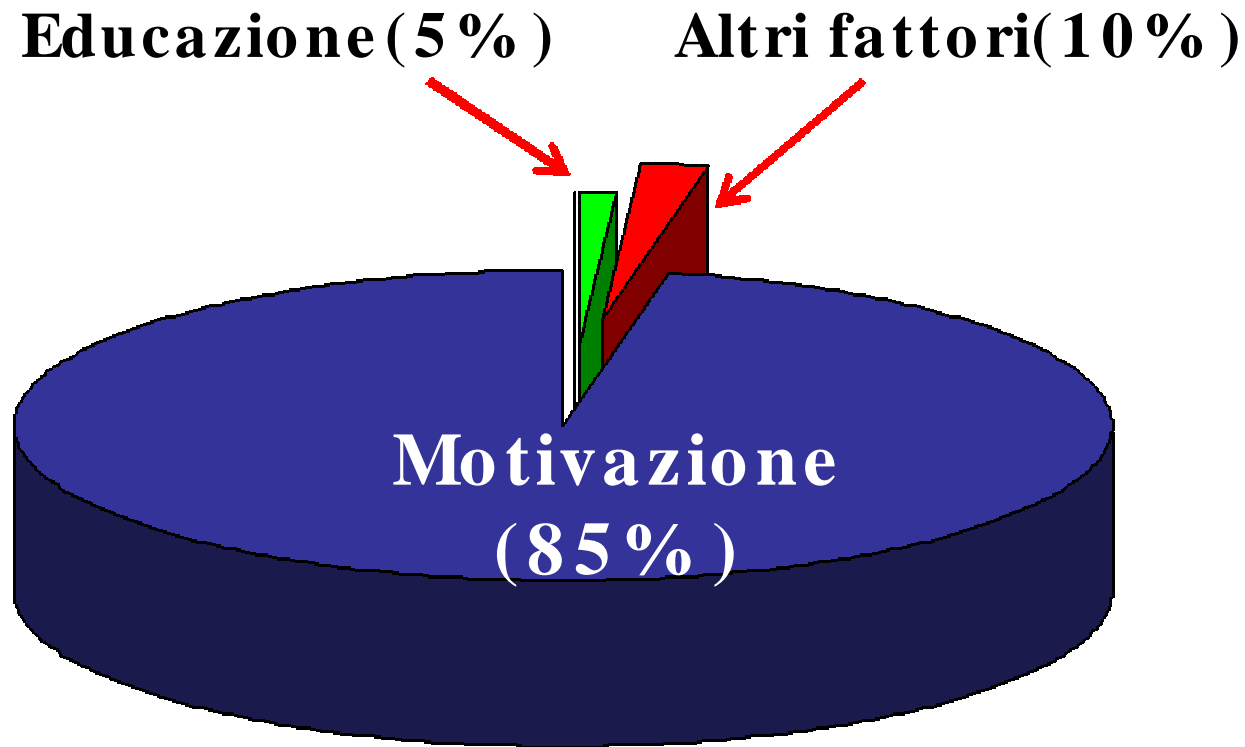
*The Cochrane Database of Systematic Reviews 2006*



# Lifestyle Modification



# Modificazione del Comportamento



Robert Wood Johnson Foundation Data 2003



## **CBT nel trattamento dell'Obesità**

Wadden and Foster. *Med Clin North Am* 2000

## Obesity - Exercise Prescription

ACSM's guideline for exercise testing and prescription. Seventh Edition

- The needs and goals of the obese subject must be individually matched with the proper exercise program to achieve long-term management;
- Primary mode should be large muscle group aerobic activities.

FREQUENZA	5 -7 volte settimana
DURATA	45 – 60 minuti
INTENSITA'	40-60% HRR,eventuale progressione 50-75% HRR
VOLUME	Mantenimento 150 minuti settimanali nella fase iniziale Mantenimento Ottimale $\geq 2000$ kcal*week <sup>-1</sup> (200-300 minuti)



## Special Considerations

- Obese individuals are at increased risk for orthopedic injury, and it may require that the intensity of exercise be maintained at or below the intensity recommended for improvement of CR fitness
- Obese individuals have an increased risk of hyperthermia during exercise
- Equipment modifications may be necessary (i.e. wide seats on cycle ergometers)



**AMERICAN COLLEGE  
of SPORTS MEDICINE**

POSITION STAND

# Appropriate Physical Activity Intervention Strategies for Weight Loss and Prevention of Weight Regain for Adults

MEDICINE & SCIENCE IN SPORTS & EXERCISE®

Copyright © 2009 by the American College of Sports Medicine

- **PA to prevent weight gain.**

PA of 150 to 250 min\*wk<sup>-1</sup> with an energy equivalent of 1200 to 2000 kcal\*wk<sup>-1</sup> will prevent weight gain greater than 3% in most adults

- **PA for weight loss.**

PA < 150 min\*wk<sup>-1</sup> promotes minimal weight loss,  
PA > 150 min\*wk<sup>-1</sup> results in modest weight loss of about 2–3 kg, PA > 225–420 min\*wk<sup>-1</sup> results in 5- to 7.5-kg weight loss, and a dose–response exists.



AMERICAN COLLEGE  
of SPORTS MEDICINE

POSITION STAND

## Appropriate Physical Activity Intervention Strategies for Weight Loss and Prevention of Weight Regain for Adults

- **PA for weight maintenance after weight loss.**

Some studies support the value of about 200- to 300-  
min\*wk<sup>-1</sup> PA during weight maintenance to reduce  
weight regain after weight loss, and it seems that “more  
is better.”

However, there are no correctly designed, adequately  
powered, energy balance studies to provide evidence for  
the amount of PA to prevent weight regain after weight  
loss.

- **Lifestyle PA is an ambiguous term and must be carefully defined to evaluate the literature.** Given this limitation, it seems lifestyle PA may be useful to counter the small energy imbalance responsible for obesity in most adults.



AMERICAN COLLEGE  
of SPORTS MEDICINE

POSITION STAND

---

# Appropriate Physical Activity Intervention Strategies for Weight Loss and Prevention of Weight Regain for Adults

- **PA and diet restriction.**

PA will increase weight loss if diet restriction is modest but not if diet restriction is severe

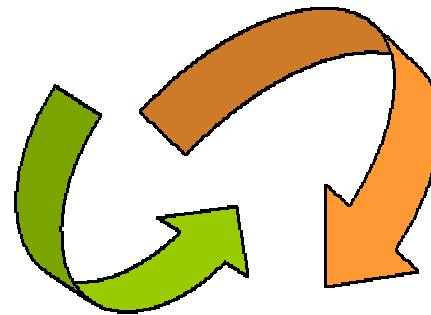
- **Resistance training (RT) for weight loss.**

Research evidence does not support RT as effective for weight loss with or without diet restriction. There is limited evidence that RT promotes gain or maintenance of lean mass and loss of body fat during energy restriction and there is some evidence RT improves chronic disease risk factors (i.e., HDL-C, LDL-C, insulin, blood pressure).

## Predisposizione al cambiamento e Barriere percepite alla pratica di attività fisica.

Principali ostacoli a praticare uno stile di vita attivo per un soggetto obeso:

- Presenza di gravi problemi fisici
- Mancanza di Tempo
- Stanchezza
- Scarsa attitudine verso il movimento
- Vergogna di mostrare il proprio corpo
- Depressione
- Pensieri disfunzionali:
  - Sono troppo stanco
  - Non ho tempo
  - Sono troppo grasso
  - Sono vecchio
  - Lo farò domani
  - Non c'è nessuno che mi tenga i bambini
  - Sono troppo depresso



**Ausili  
Al soggetto Obeso  
Per la pratica  
di Att.Fisica**



**Usare uno strumento di monitoraggio (diario, contapassi)**

**Coinvolgere amici, parenti**

**Pianificare la giornata in modo da arrivare a compiere 10000 passi**

**Usare attrezzature sportive (cyclette, tapis roulant, cardiofrequenzimetro)**

**Usare stimoli positivi (palestra, personal trainer)**

**Avere obiettivi a breve termine**

**Ricompense**