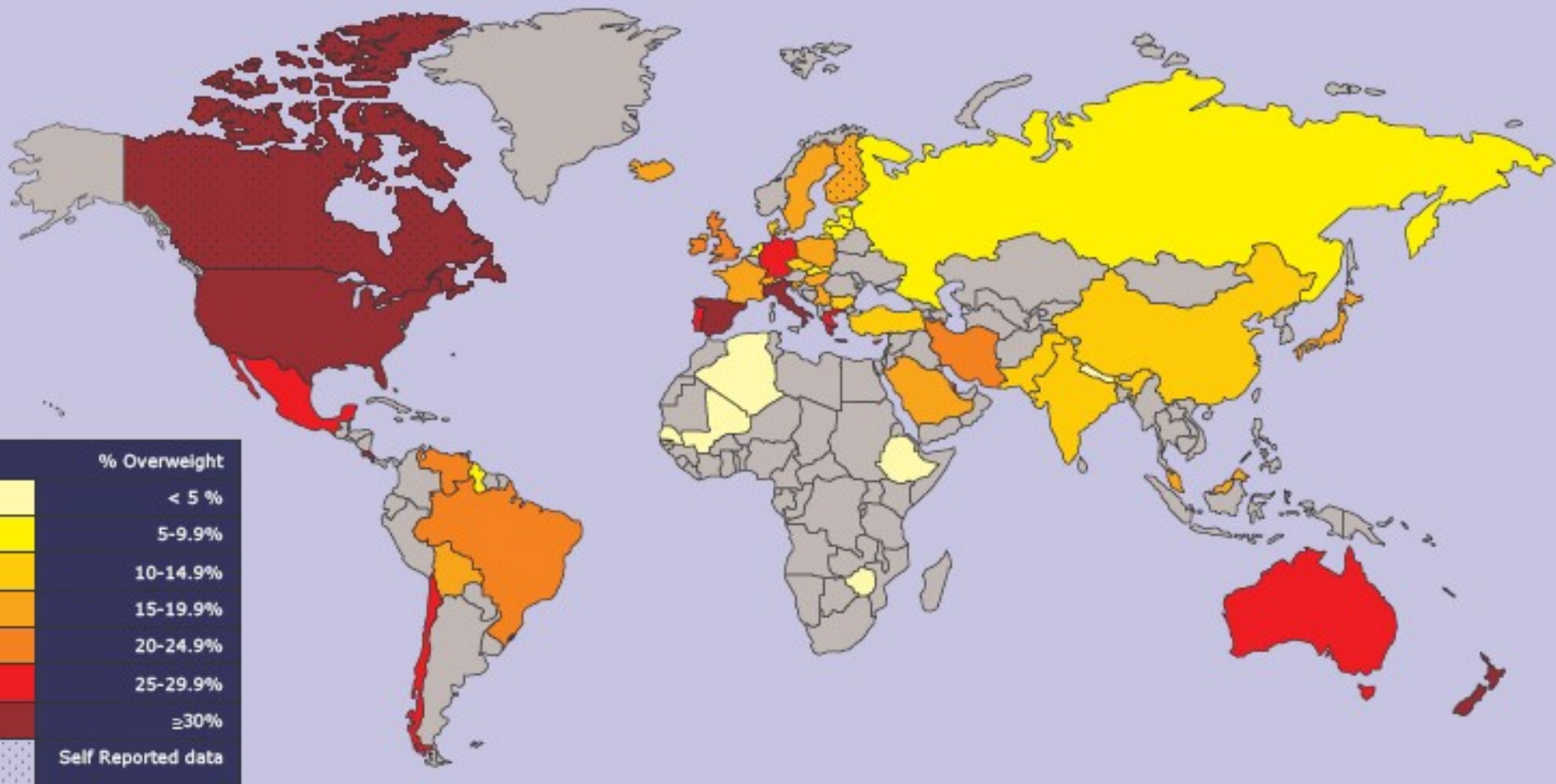


Classificazione degli Stadi Ponderali

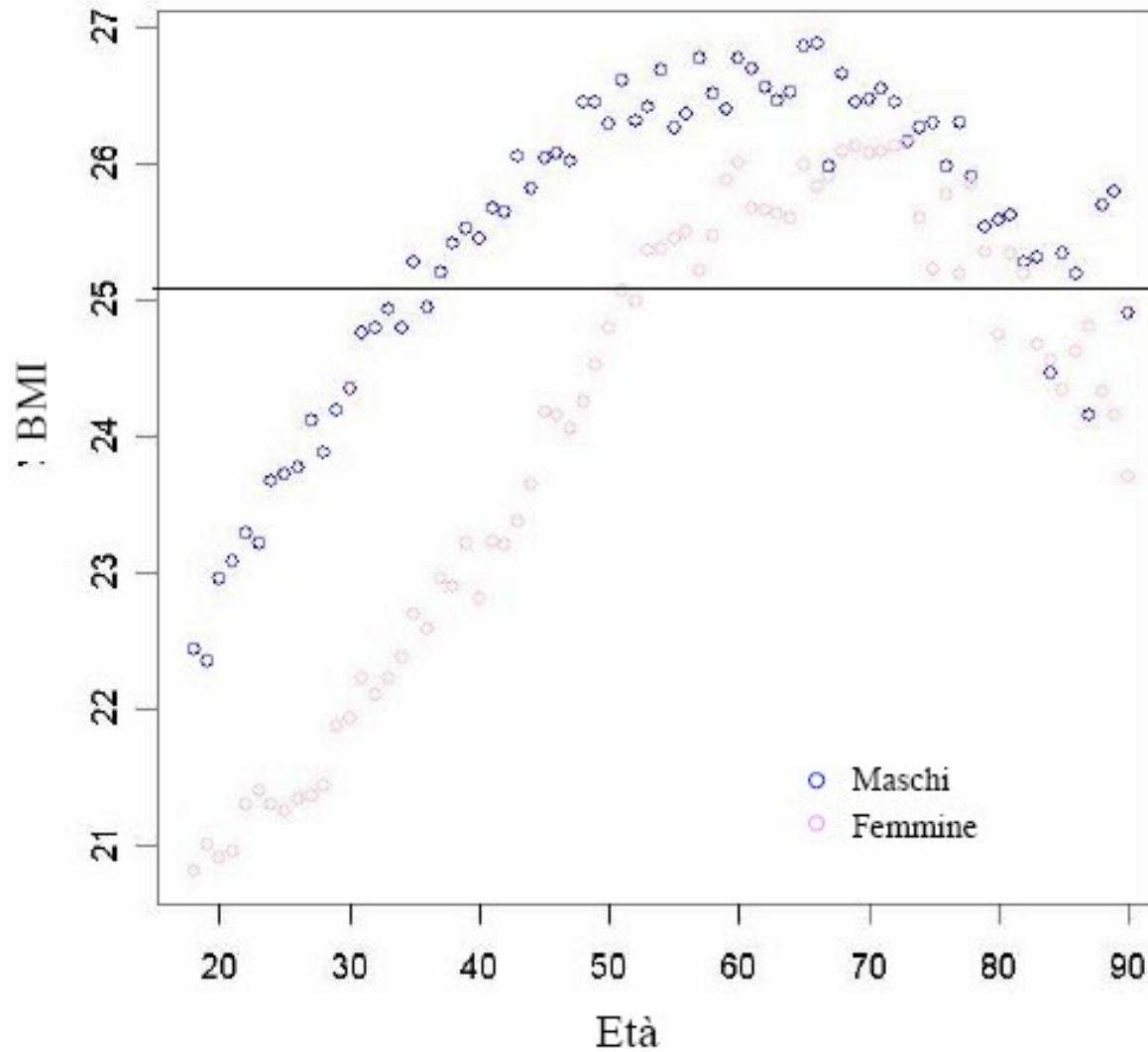
	BMI
Sottopeso	<18.5
Normopeso	18.5-24.9
Sovrappeso	25-29.9
Obesità I grado	30-34.9
Obesità II grado	35-39.9
Obesità III grado	≥ 40

Global Prevalence of Overweight in Boys 2000-2006

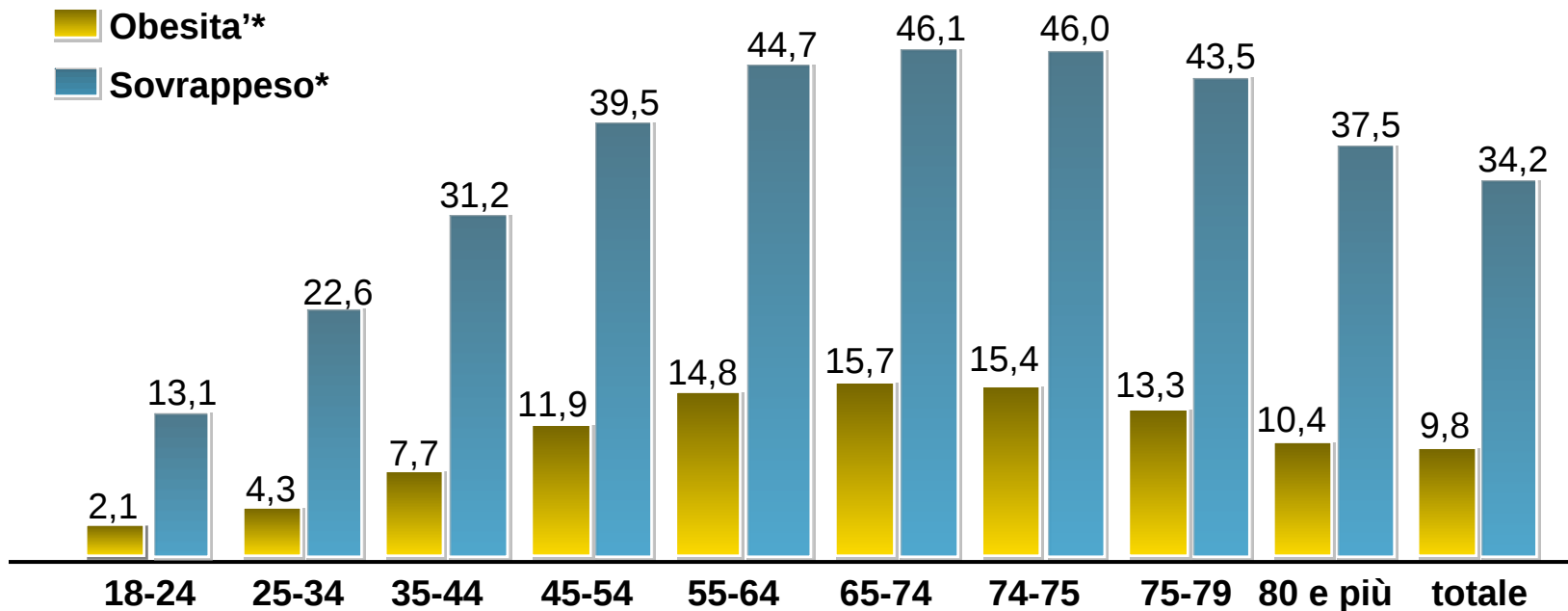


BMI - Differenze di Genere

Indagine Multiscopo ISTAT, 2004



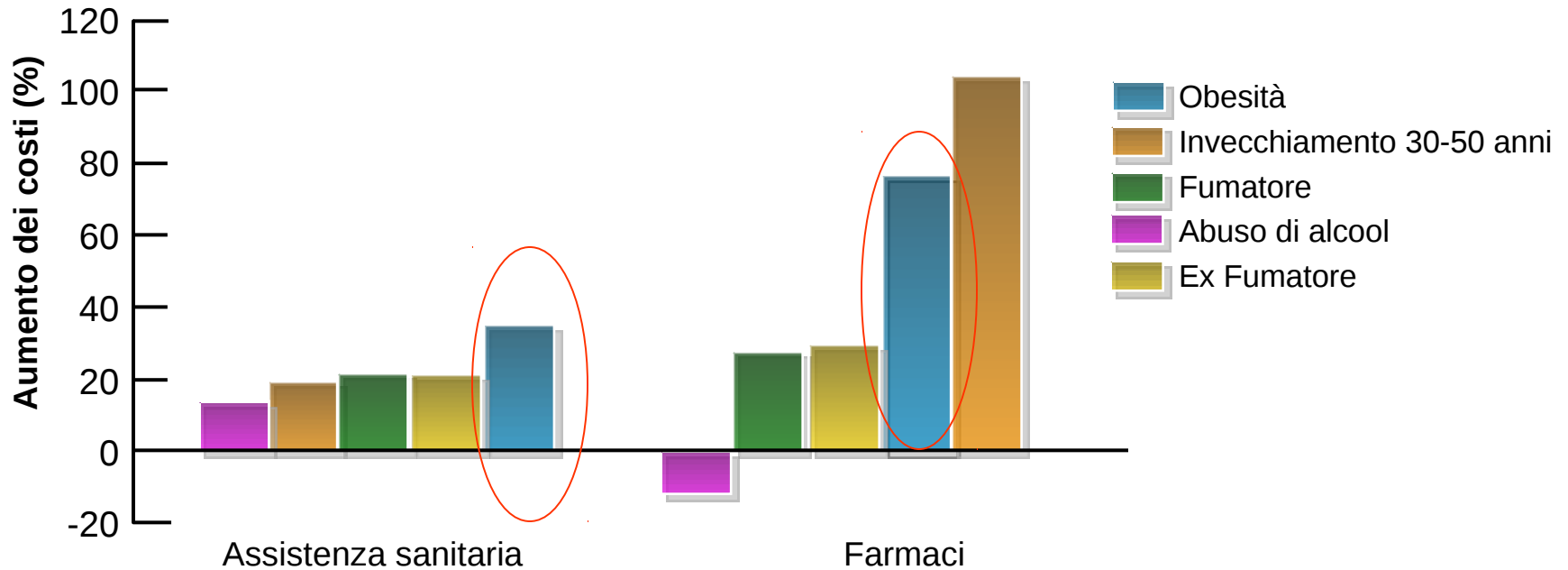
Distribuzione di obesità e sovrappeso in Italia per classi di età



*Per 100 persone dello stesso sesso e classe di età

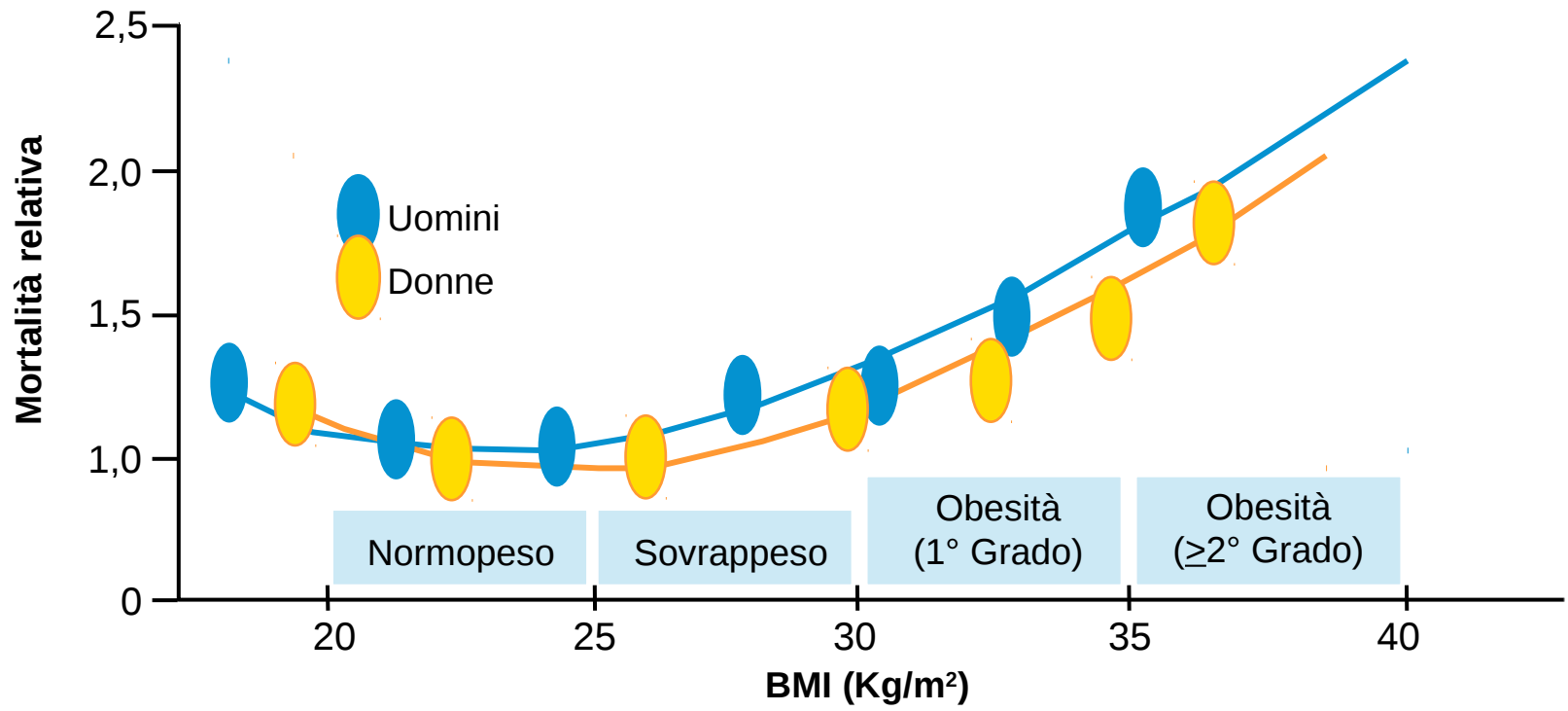
ISTAT, 2007

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



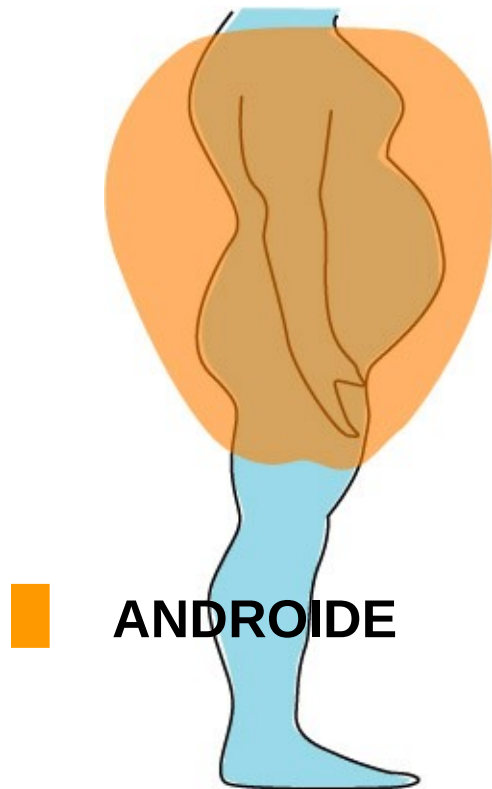
Lew EA. *Ann Intern Med* 1985; 103: 1024-9

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

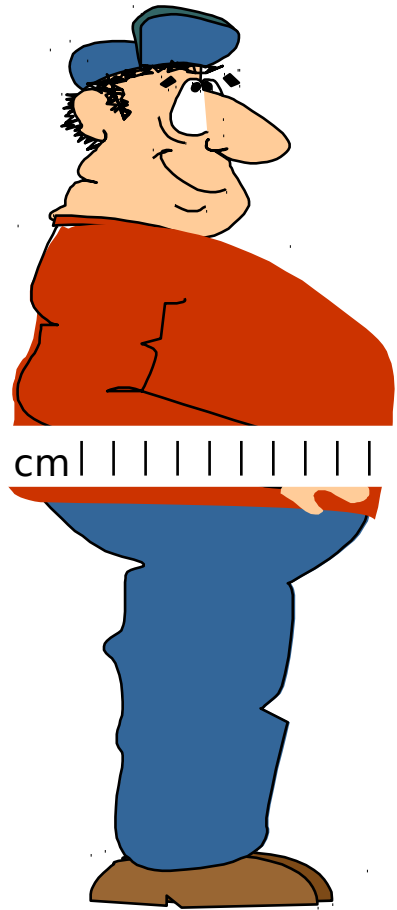
-  Ipertensione
-  Dislipidemia
-  Coronaropatia
-  Diabete di tipo 2
-  Ictus

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

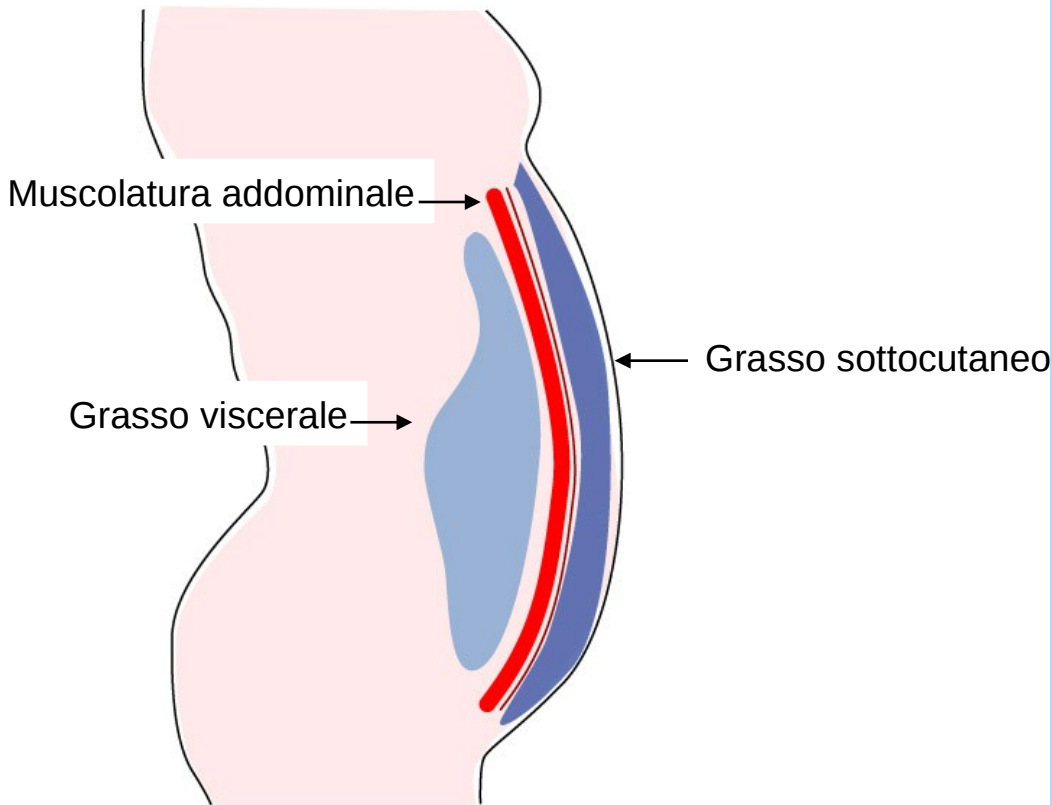
L'entità del rischio cardiovascolare è correlata all'accumulo di grasso viscerale. L'adiposità viscerale è un fattore predittivo indipendente di complicanze metaboliche e cardiovascolari



Waist Circumference



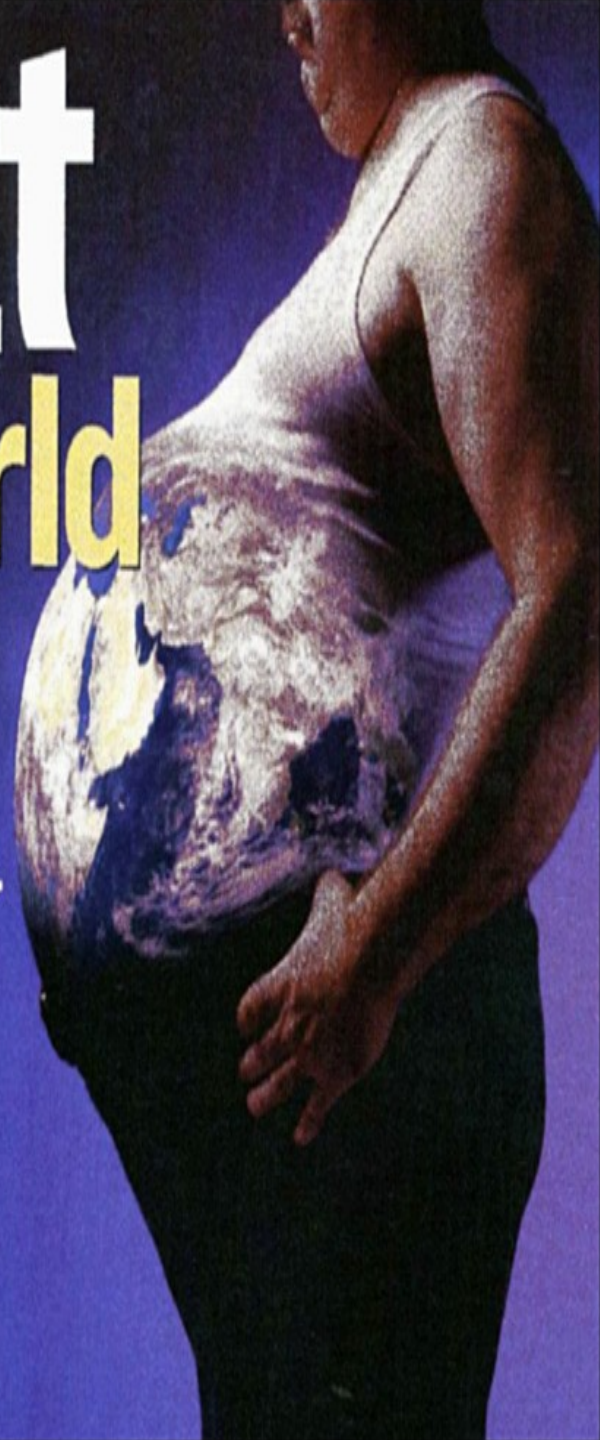
	Circonferenz a vita	Rischio metabolico
Uomini	≥ 102 cm	Molto aumentato
Donne	≥ 88 cm	Molto aumentato



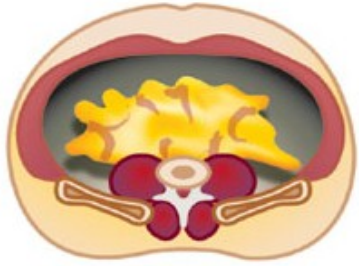
Fat World

We're Eating
More Junk
And Getting
Less Exercise.

Obesity Is
The Globe's
Newest
Epidemic.



Subcutaneous obesity
'Healthy' adipose tissue



NO ECTOPIC FAT



Low muscle fat



Low epicardial fat



Low liver fat and
normal function

Normal metabolic profile

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.**

Visceral obesity
Dysfunctional adipose tissue



• Altered FFA metabolism

• Altered release of adipokines



LIPID OVERFLOW-ECTOPIC FAT



↑ Muscle fat
(↑ intracellular lipid)



↑ Epicardial fat

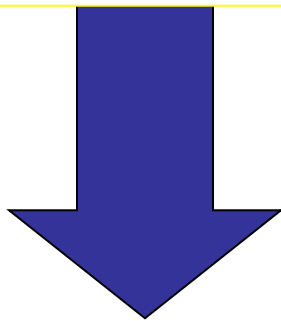


↑ Liver fat and
altered function

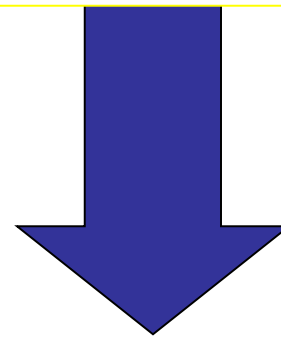
Altered metabolic profile

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**



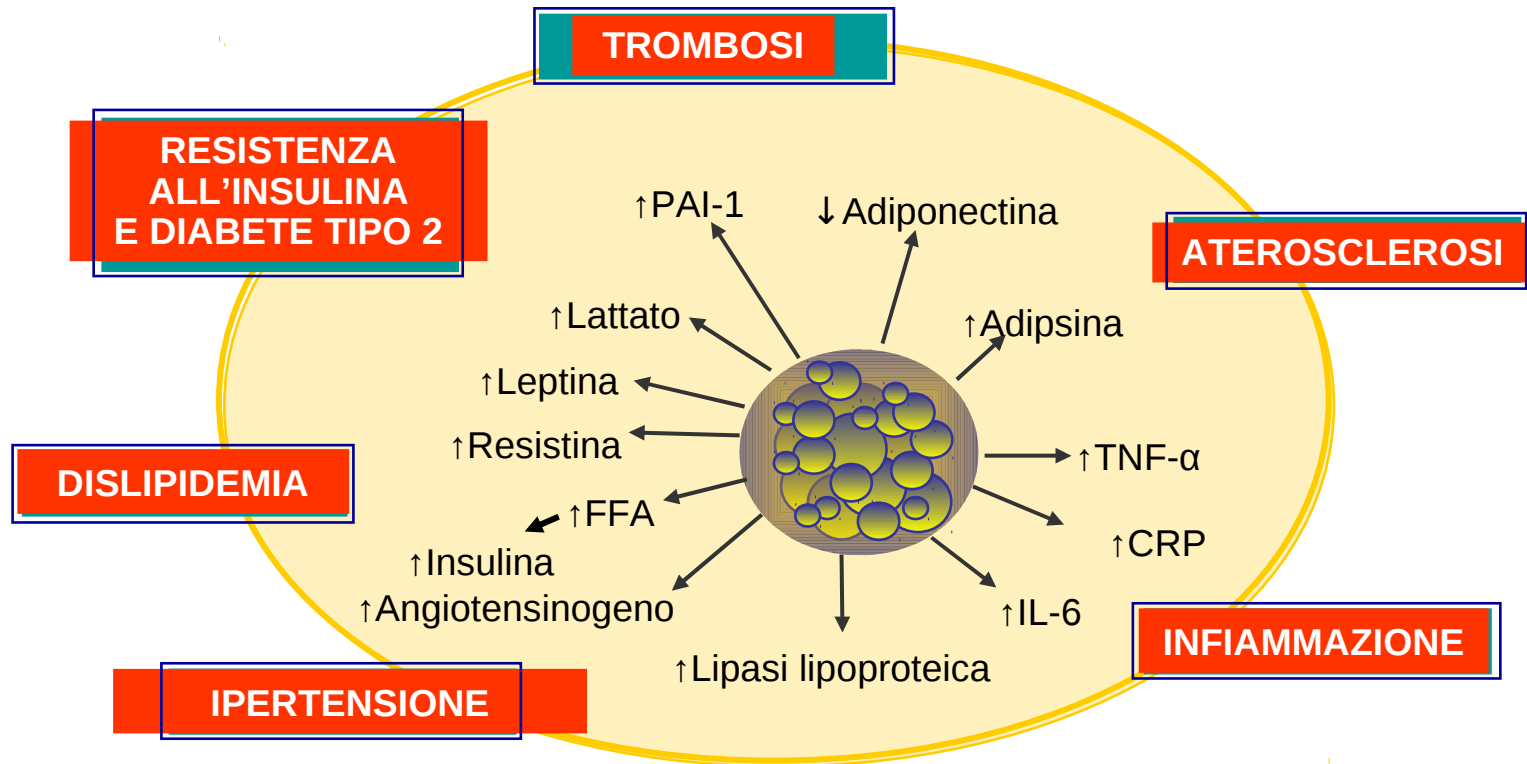
**IGT/DM tipo 2, ipertensione
arteriosa, patologie
cardiovascolari**

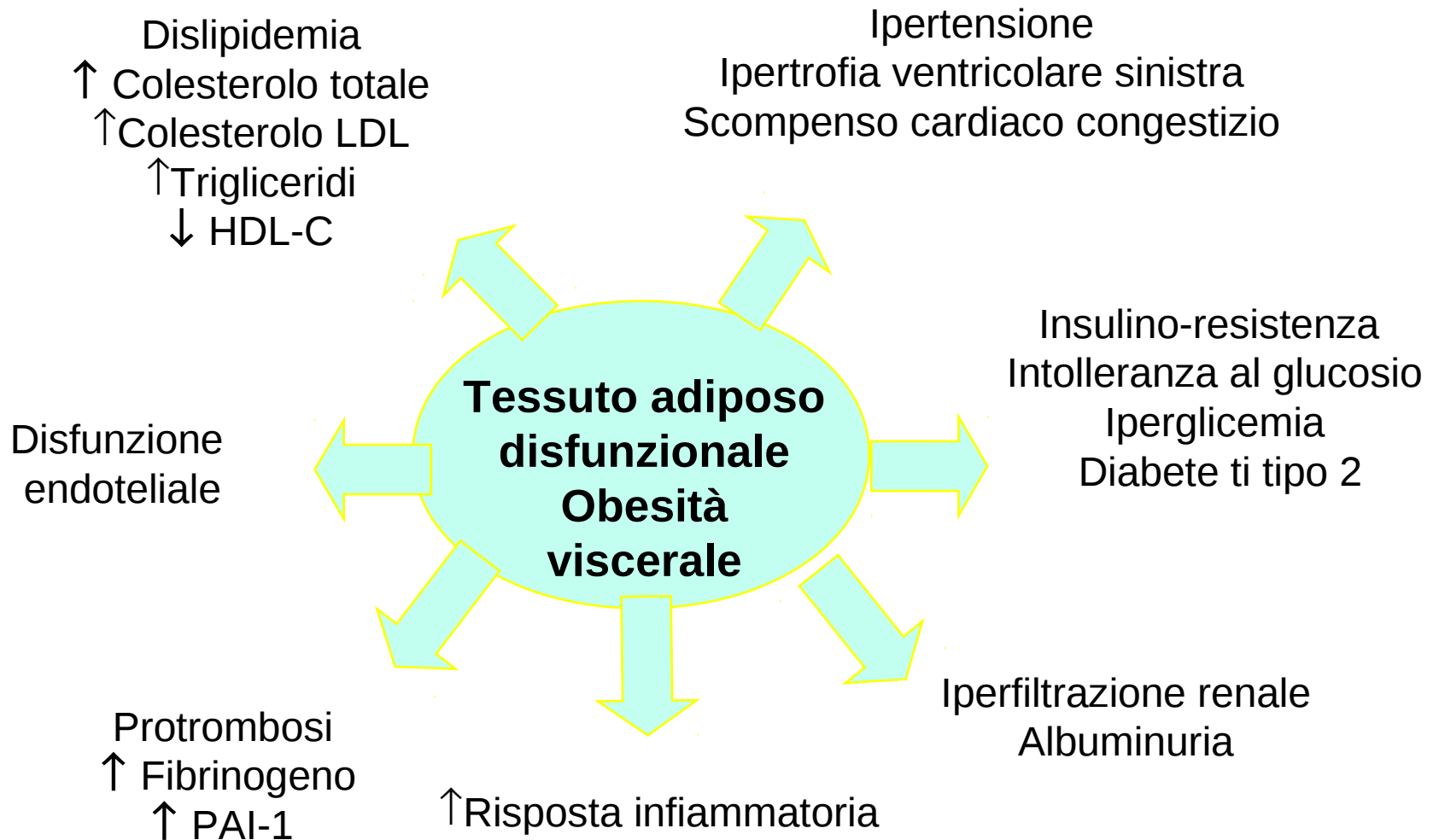


Obesità addominale e rischio cardiovascolare e metabolico

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

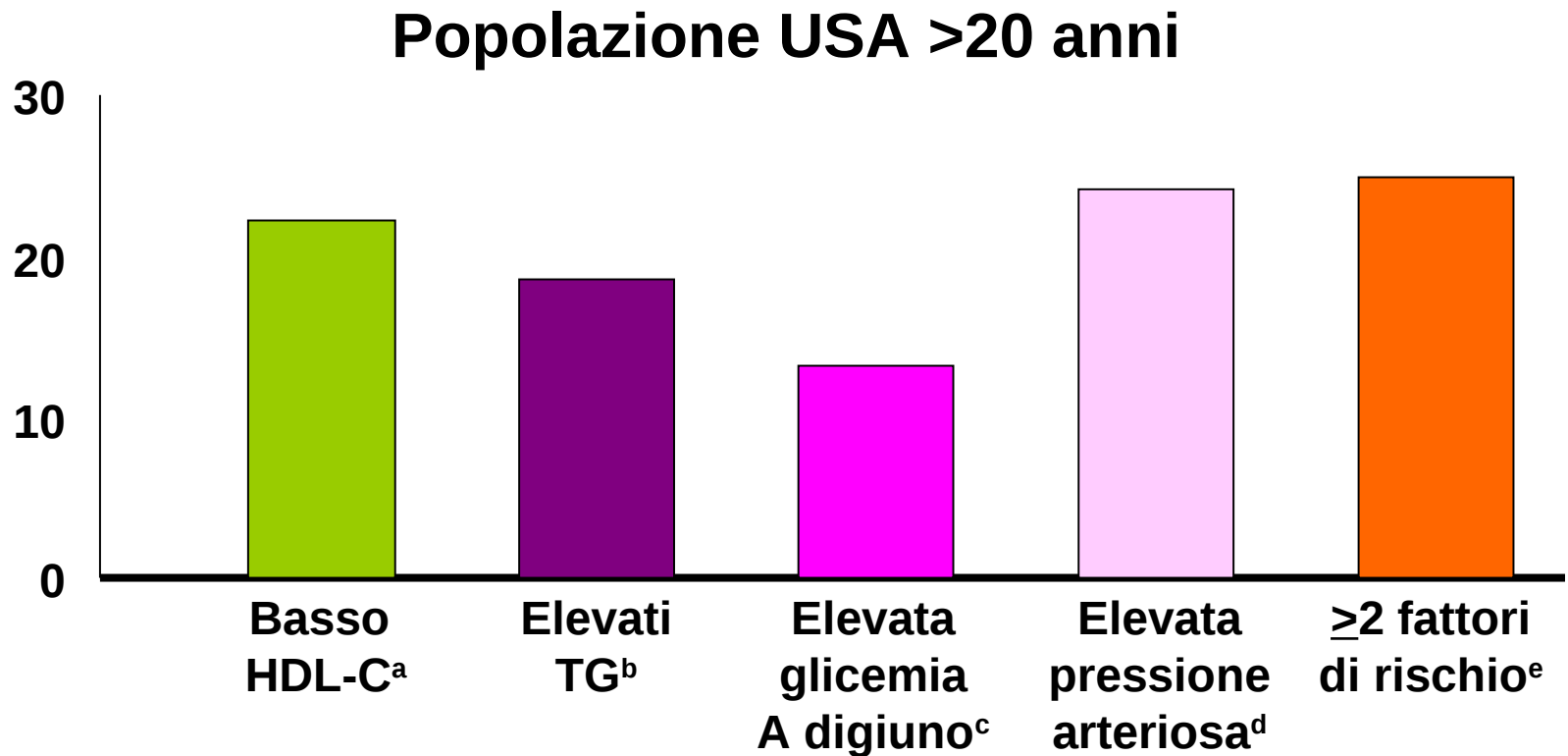
**La loro azione biologica è implicata nella patogenesi
del danno cardiovascolare**





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

Prevalenza di elevata circonferenza Addominale associata con FR (%)



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

Rischio di IM nello studio InterHeart

Fattore di rischio	% Controlli	% Casi	OR aggiustato ^a
Lipidi (ApoB/ApoA-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
Obesità addominale	33.3	46.3	2.22
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

^aAggiustato per età, sesso, fumo; ^bvita/fianchi rapporto

Trattamento dell'Obesità

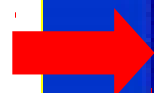
- Obiettivo del trattamento dell'obesità e del sovrappeso è **raggiungere e mantenere il calo ponderale utile per la riduzione del rischio di mortalità e morbidità** dovuto alle patologie associate
- I protocolli terapeutici prevedono:
 - Dieta ipocalorica
 - Esercizio fisico
 - Interventi psicocomportamentali
 - 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">Prevenzione del diabeteMiglioramento della QoLMiglioramento dei sintomi (es. osteoartrite del ginocchio)
≥10%	<ul style="list-style-type: none">Miglioramento delle apnee notturneMiglioramento della funzione respiratoria nel paziente asmaticoRiduzione della mortalità

Guide for Selecting Obesity Treatment

Treatment	BMI Category (kg/m ²)				
	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	+

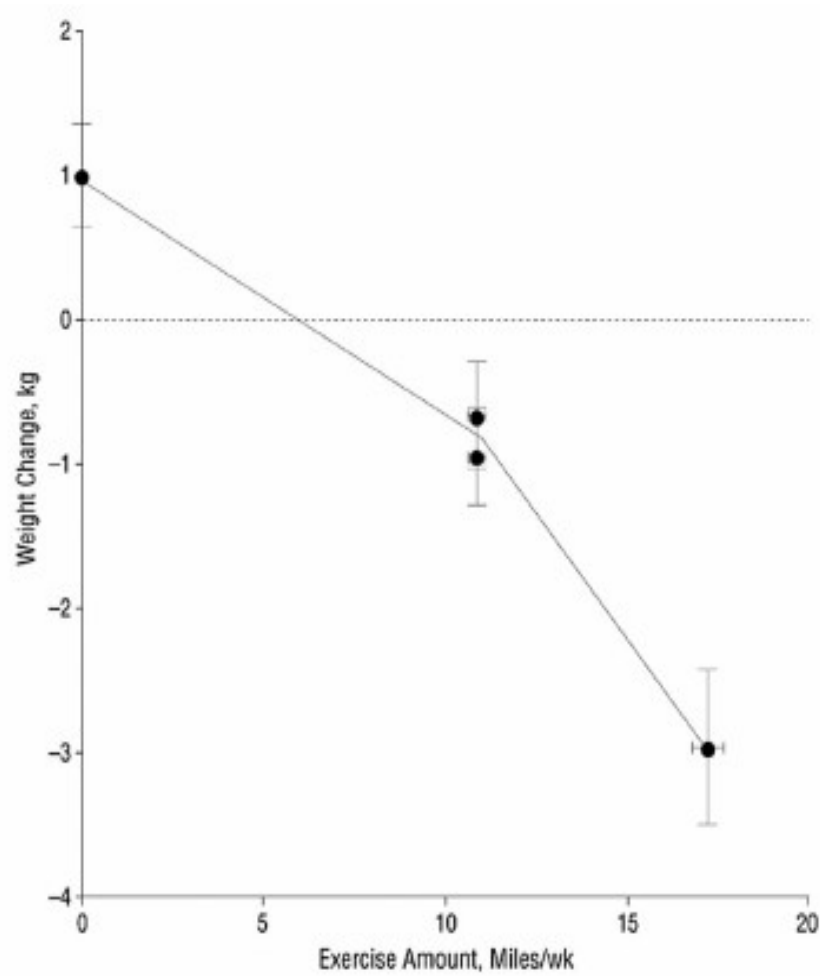


The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. October 2000, NIH Pub. No.00-4084

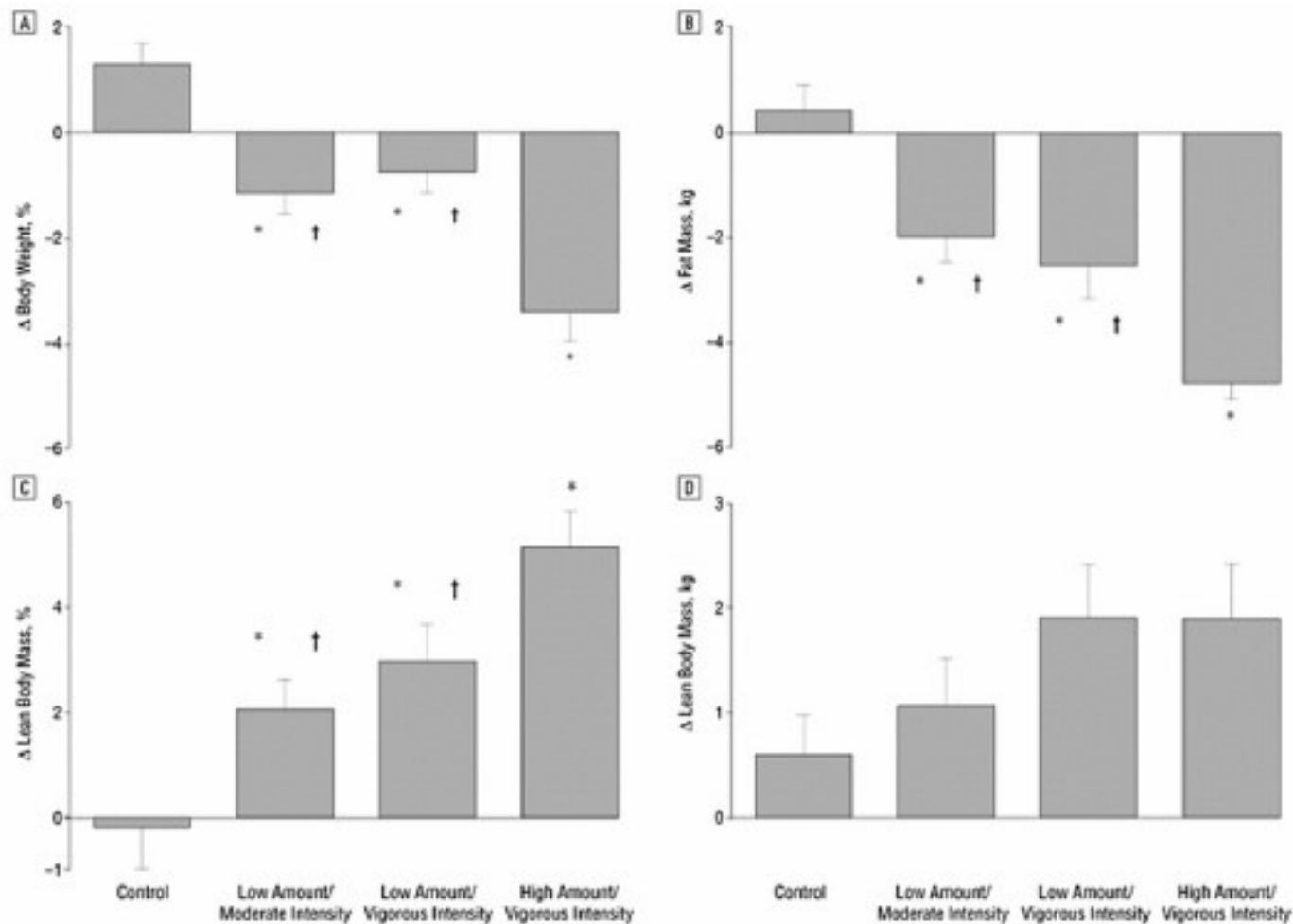
Source:
Obesity Online Slide Library
www.obesityonline.org

Relazione tra perdita di peso e volume di attività fisica

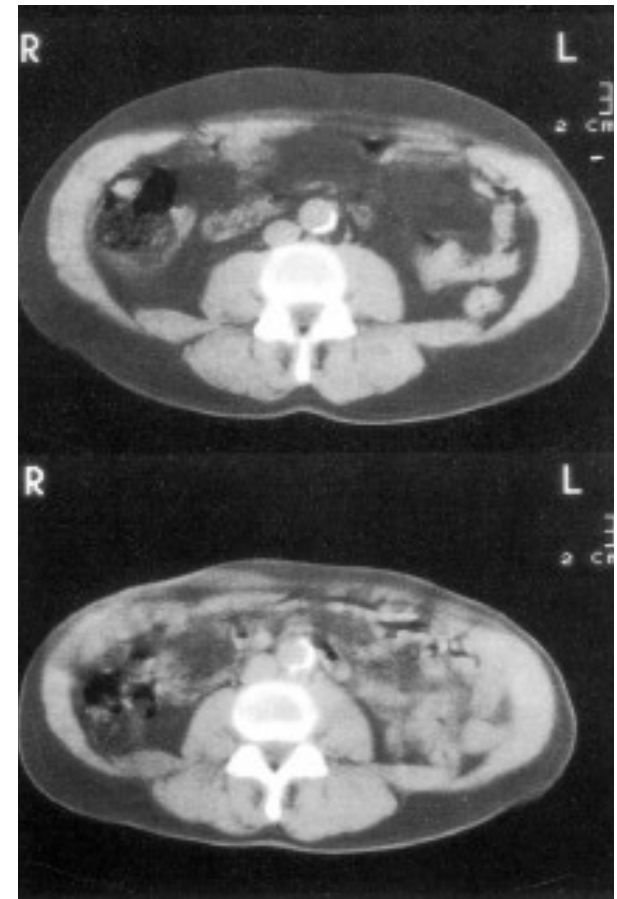
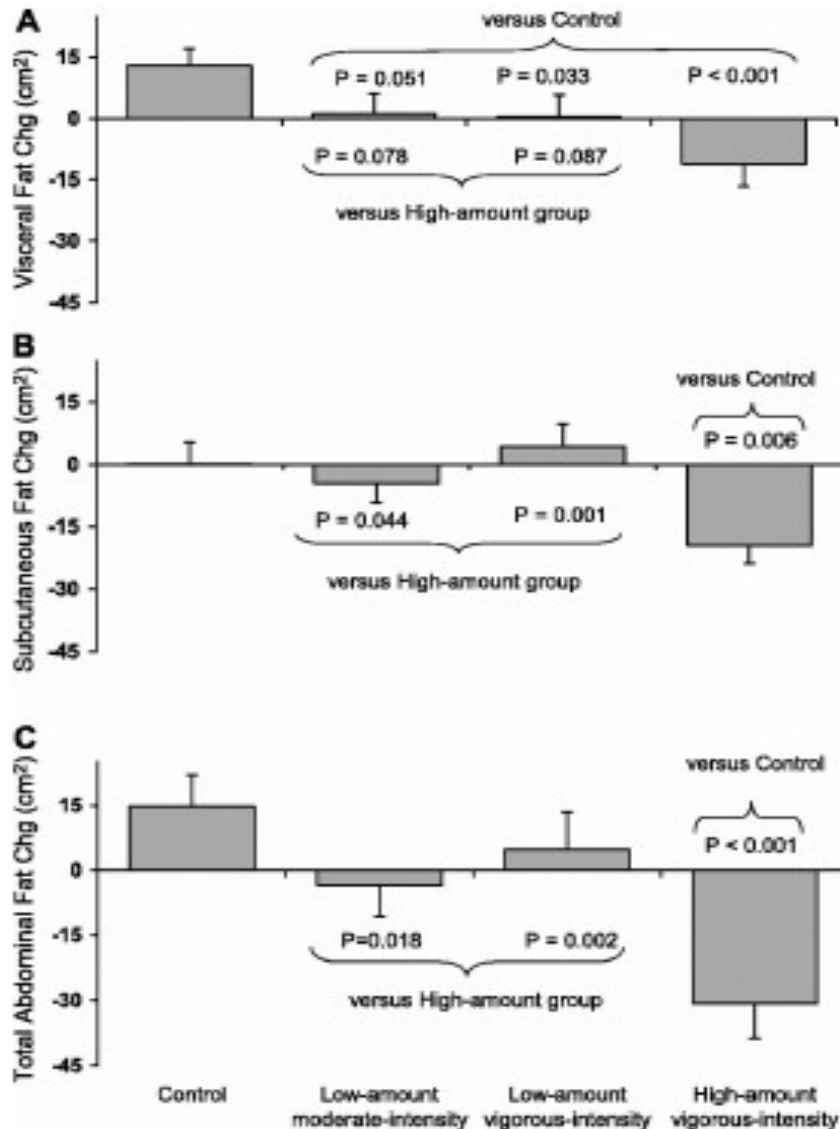
Slentz, CA Arch Intern Med 2004



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

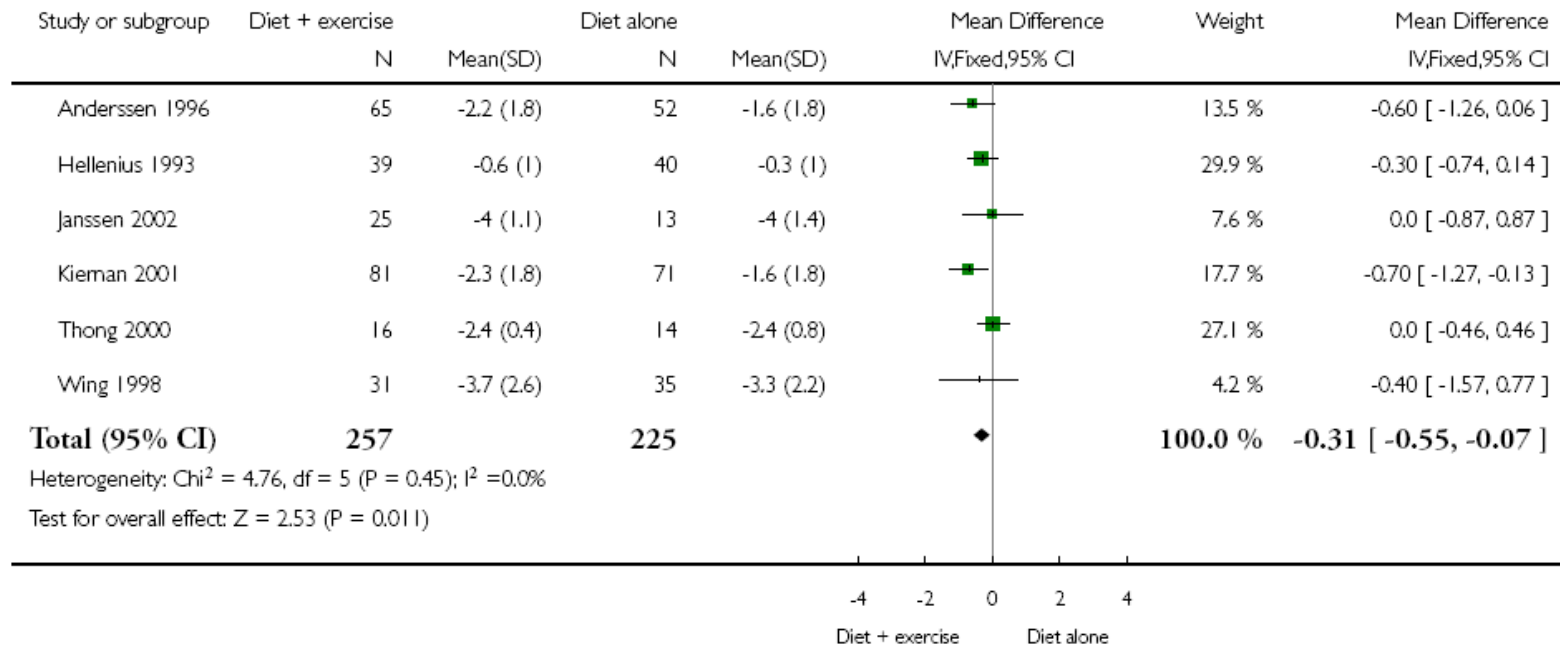
Cochrane Review

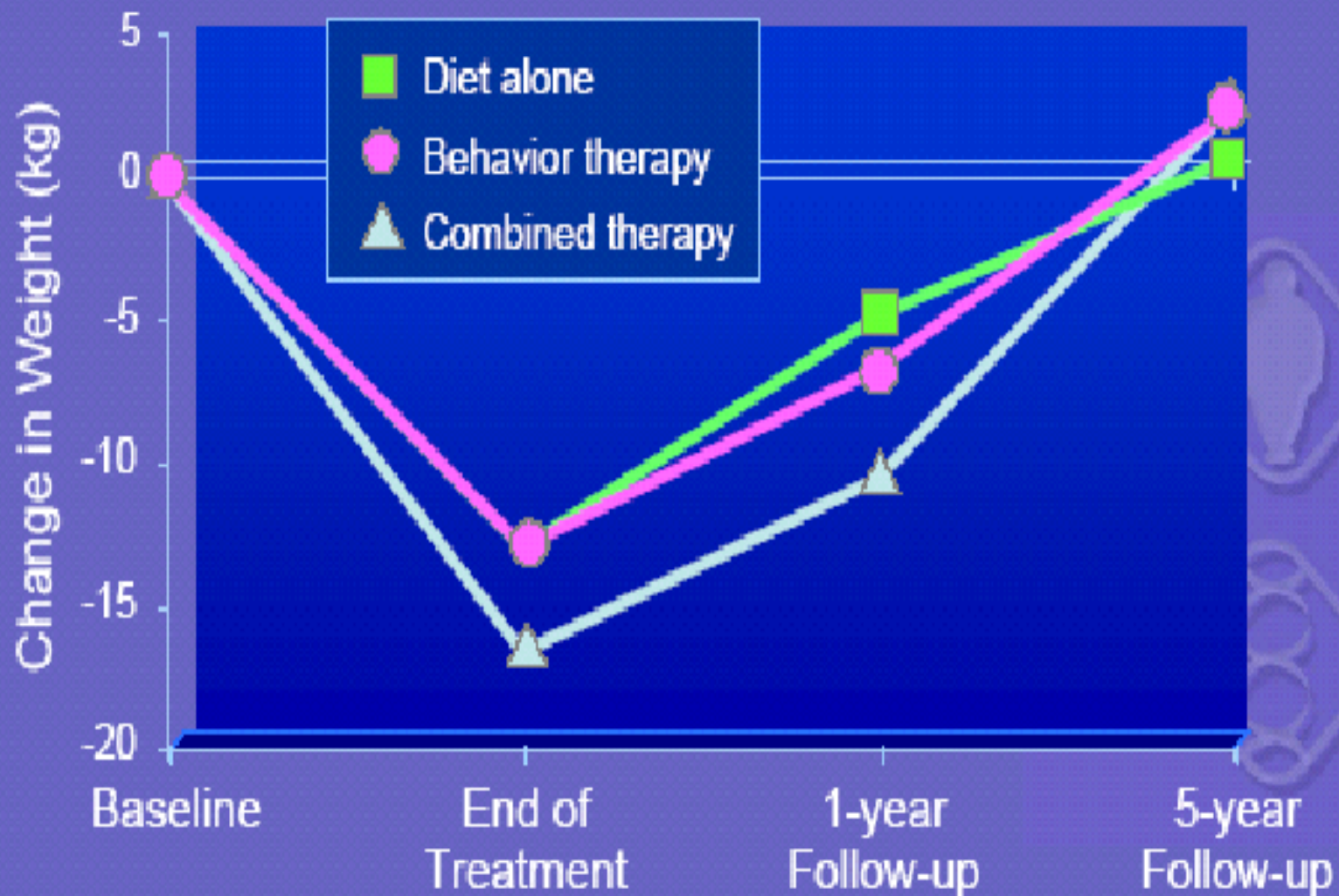
Analysis 3.2. Comparison 3 Exercise + diet versus diet alone, Outcome 2 Change in body mass index (BMI).

Review: Exercise for overweight or obesity

Comparison: 3 Exercise + diet versus diet alone

Outcome: 2 Change in body mass index (BMI)



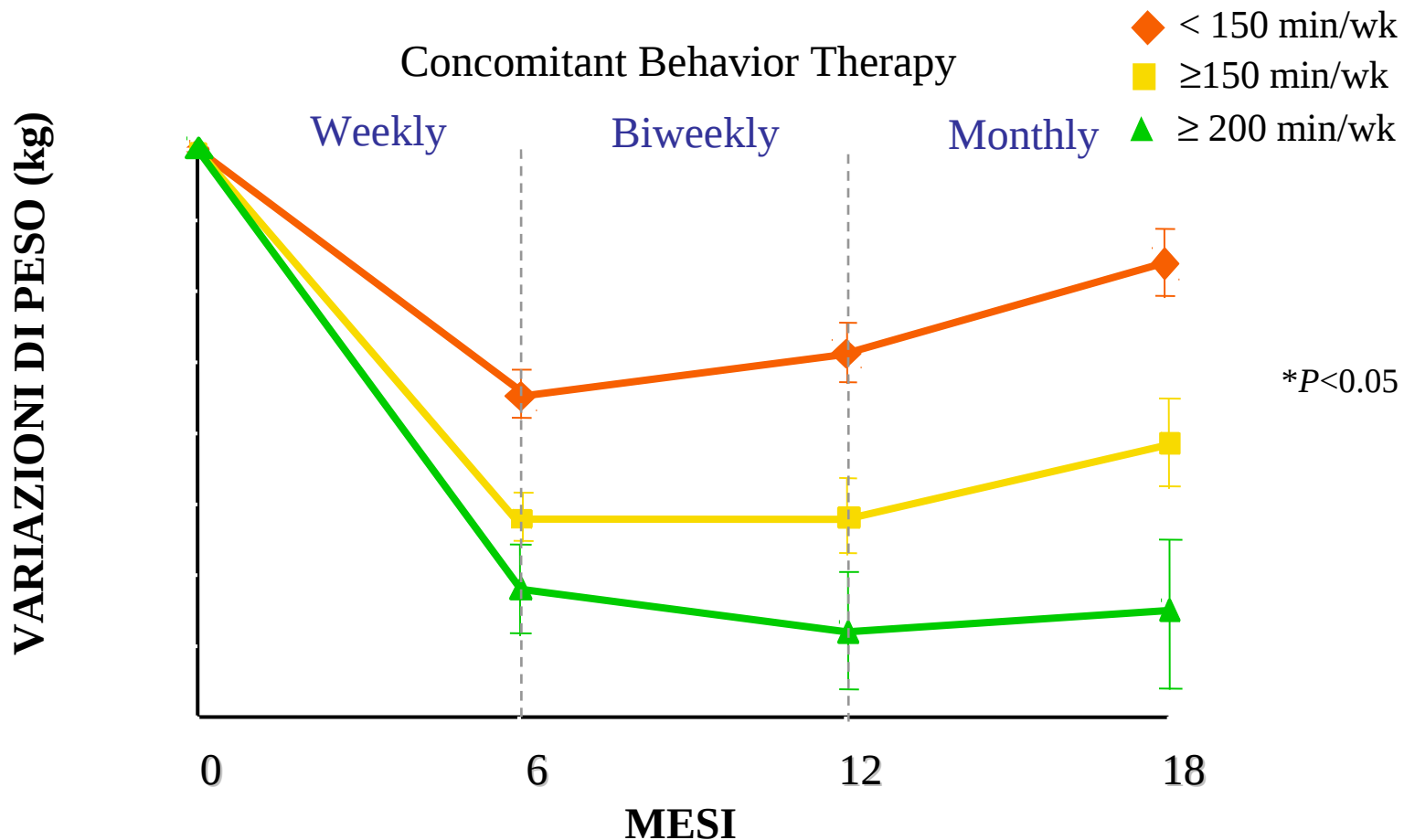


Wadden et al. *Int J Obes* 1989;13 (Suppl 2):39.

Slide Source:
www.obesityonline.org

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?¹⁻³

Dale A Schoeller, Kathyjo Shay, and Robert F Kushner

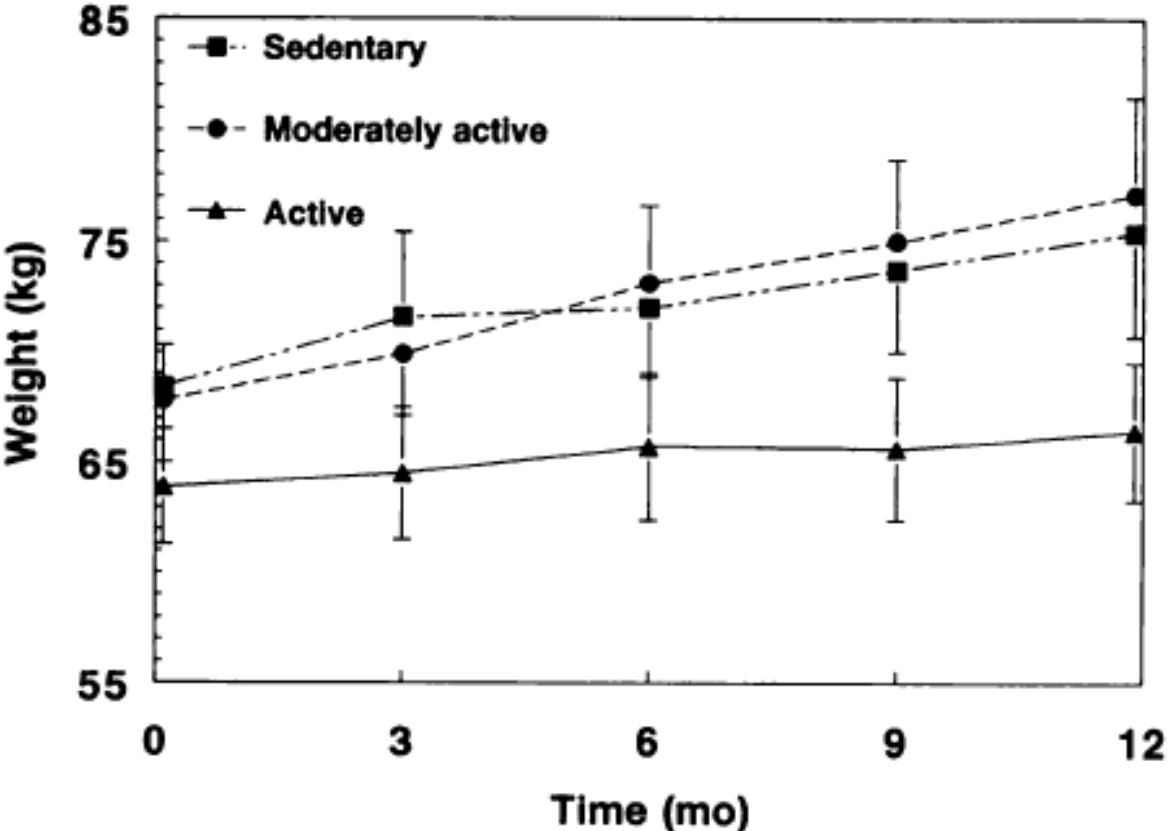


FIGURE 1. Mean (\pm SEM) body weights in three groups of previously obese women in the year after completion of weight loss. Time-group interaction, ANOVA, and post hoc *t* testing indicated that increases in weight were less in active women (TEE:RMR > 1.75).

REVIEW

The definition of weight maintenance

J Stevens^{1,2}, KP Truesdale², JE McClain¹ and J Cai³

¹*Department of Nutrition, School of Public Health, University of North Carolina, Chapel Hill, NC, USA;* ²*Department of Epidemiology, School of Public Health, University of North Carolina, Chapel Hill, NC, USA and* ³*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

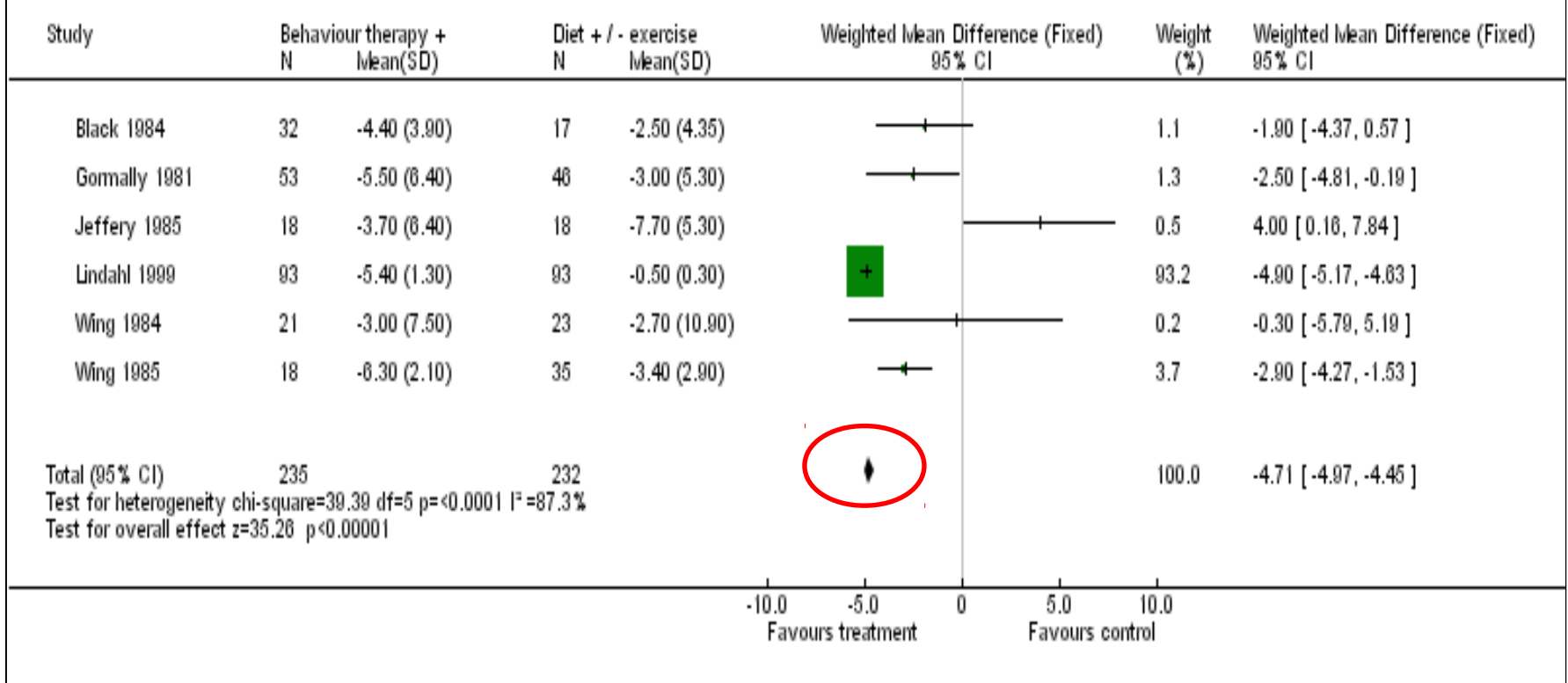
K Shaw, P O'Rourke, C Del Mar, J Kenardy

The Cochrane Database of Systematic Reviews 2006

Review: Psychological interventions for overweight or obesity
 Comparison: 02 Behaviour therapy plus diet / exercise versus diet / exercise
 Outcome: 01 Mean change in weight - studies 12 months or less duration

vs Dieta/Attività Fisica

Studi clinici randomizzati < 12 mesi



Lifestyle Modification



Modificazione del Comportamento



Robert Wood Johnson Foundation Data
2003



CBT nel trattamento dell'Obesità

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 ≥ 2000 kcal*week ⁻¹ (200-300 minuti)
--------	---

Special Considerations

- Obese individuals are at increased risk for orthopedic injury, and its 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®

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- **PA to prevent weight gain.**

PA of 150 to 250 min*wk⁻¹ with an energy equivalent of 1200 to 2000 kcal*wk⁻¹ will prevent weight gain greater than 3% in most adults

- **PA for weight loss.**

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



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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⁻¹ 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.



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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

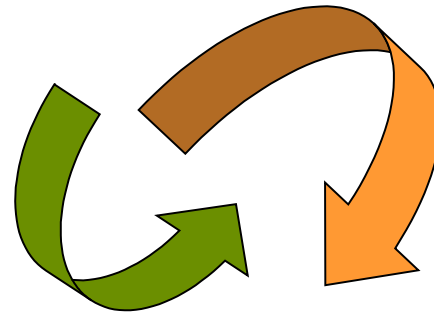
- **Resistance training (RT) for weight loss.**

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