

# Gestione multidisciplinare e integrata tra ospedale e territorio del paziente sovrappeso-obeso in età pediatrica

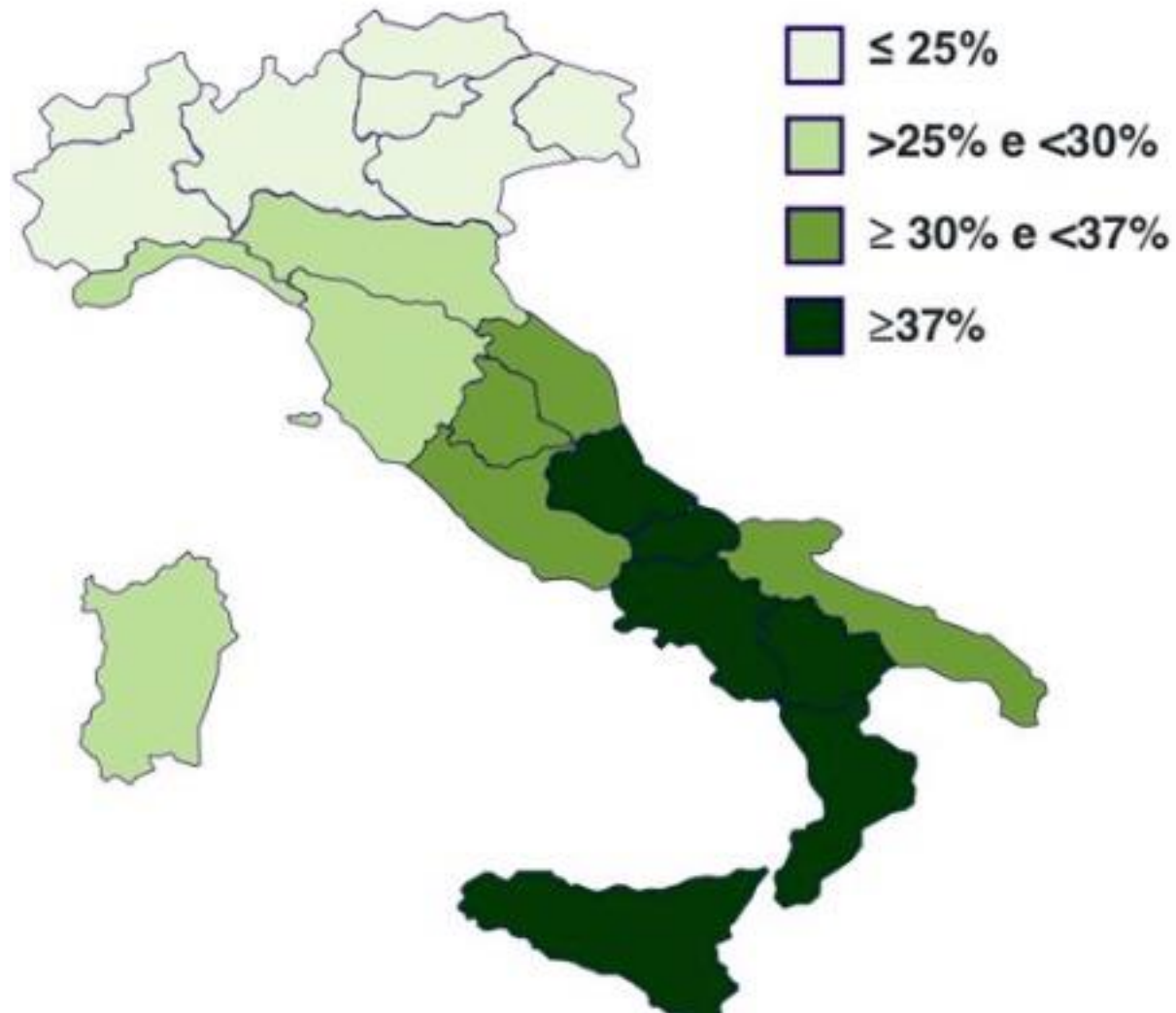
*Trento, sabato 16 maggio 2015*

## Miti, presunzioni ed evidenze in obesità pediatrica

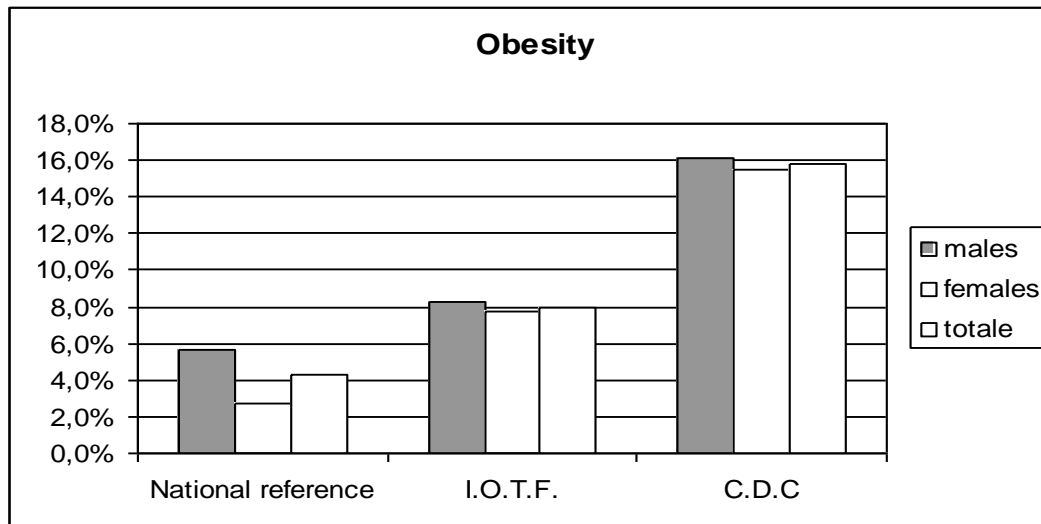
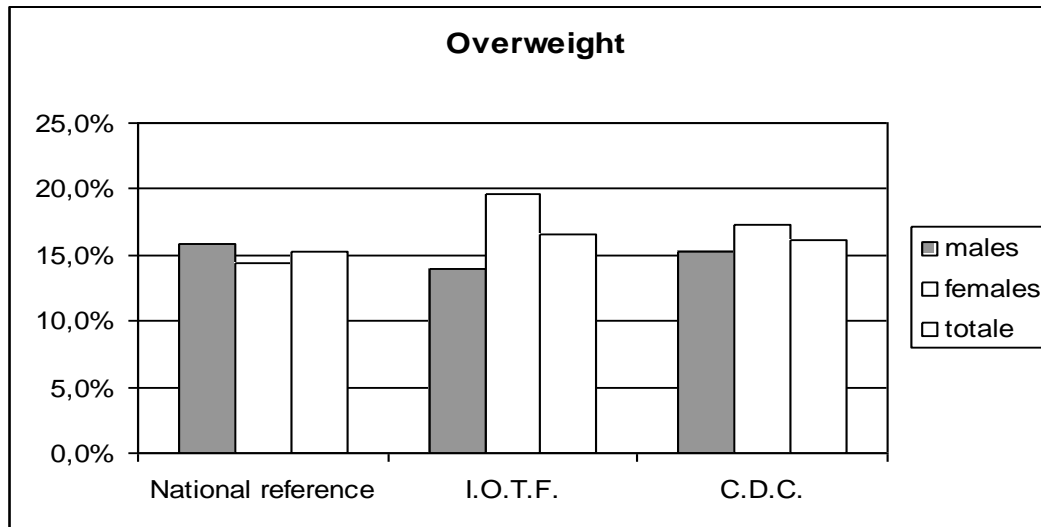
Claudio Maffeis

UOC Pediatria ad Indirizzo Diabetologico e Malattie del Metabolismo  
Centro Regionale Specializzato in Diabetologia Pediatrica  
AOUI e Università di Verona

## Prevalenza di sovrappeso ed obesità nei bambini di 8-9 anni in Italia



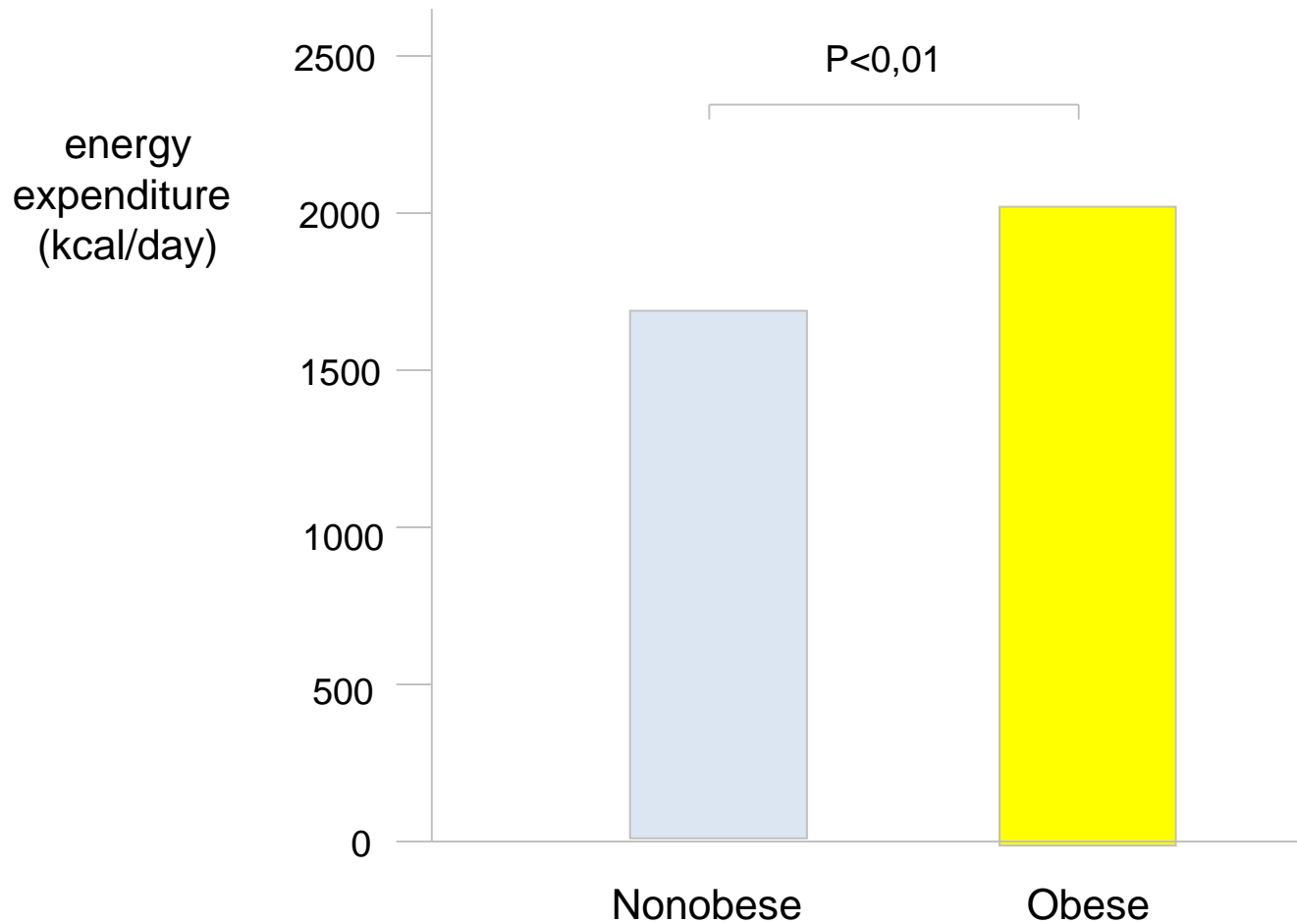
# Prevalenza di sovrappeso e obesità in Italia tra I 2 ed I 6 anni



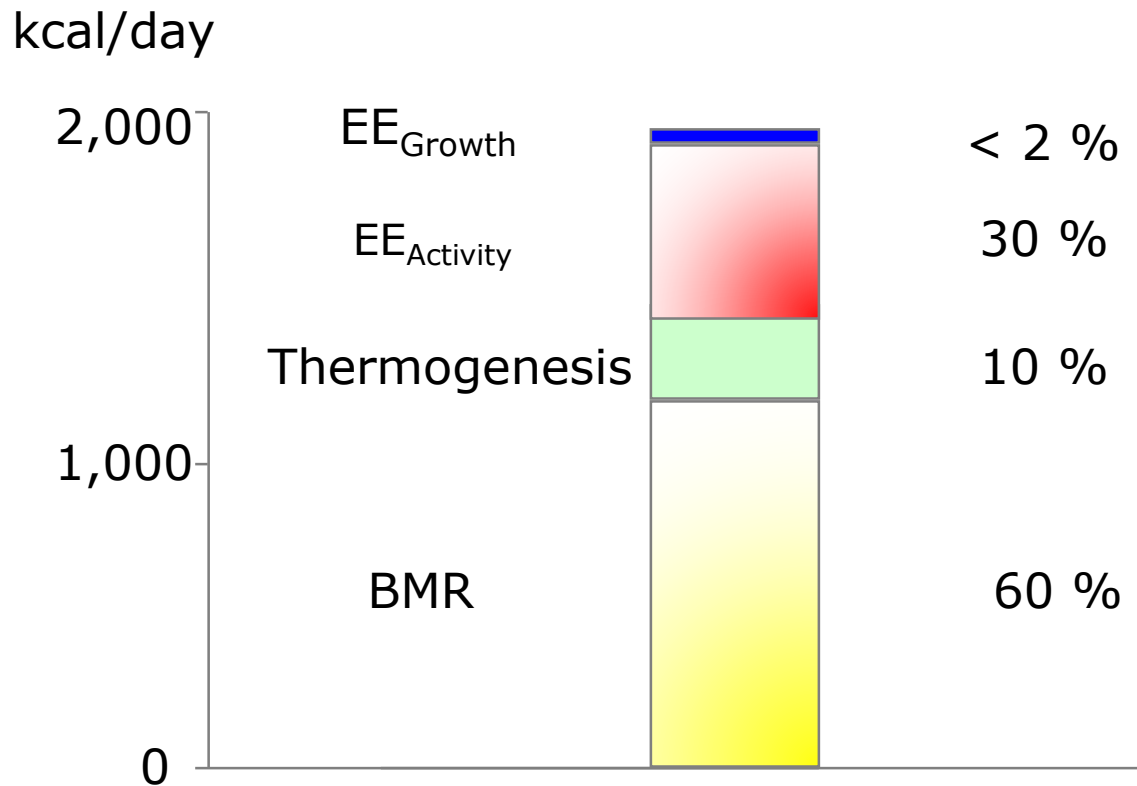
Il bambino obeso “brucia” meno calorie  
rispetto al bambino normopeso:

Ingrassa perché ha un difetto termogenetico!

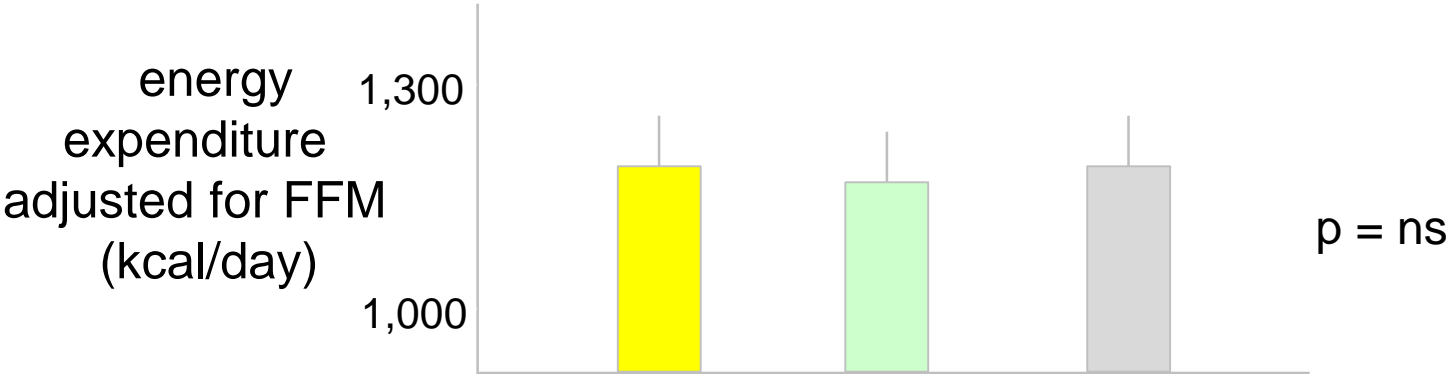
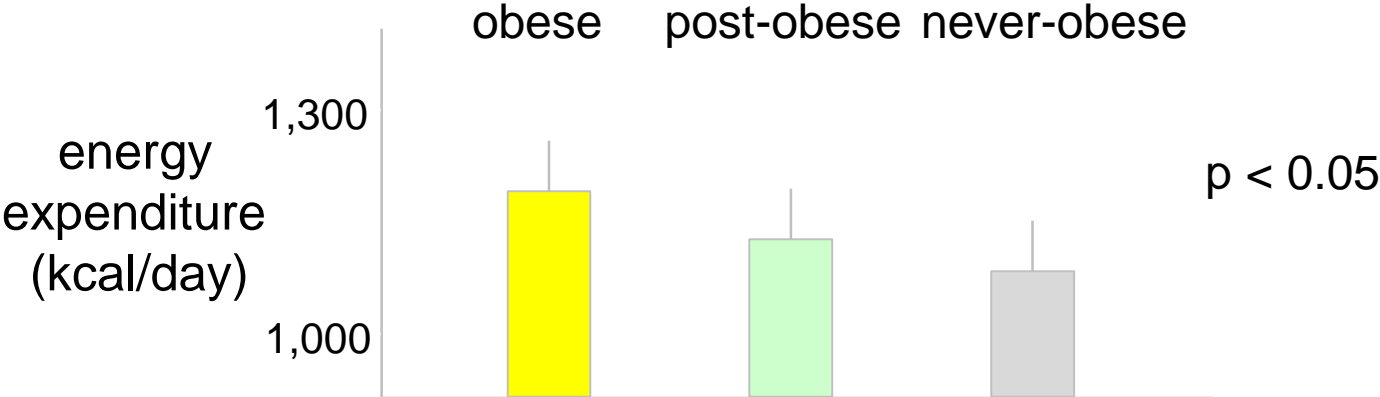
## total energy expenditure in normal weight and obese prepubertal children



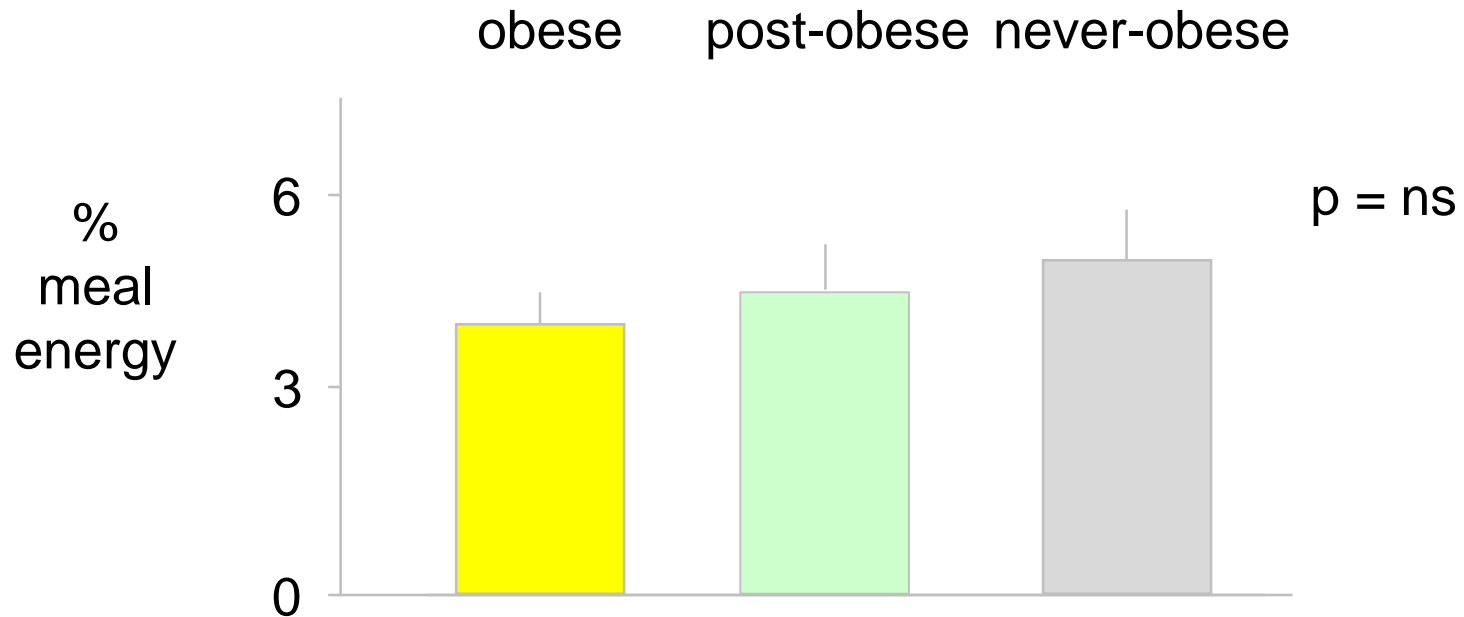
# components of the total daily energy expenditure of a 10-year-old boy



# basal energy expenditure of 9-year-old children



# meal-induced thermogenesis



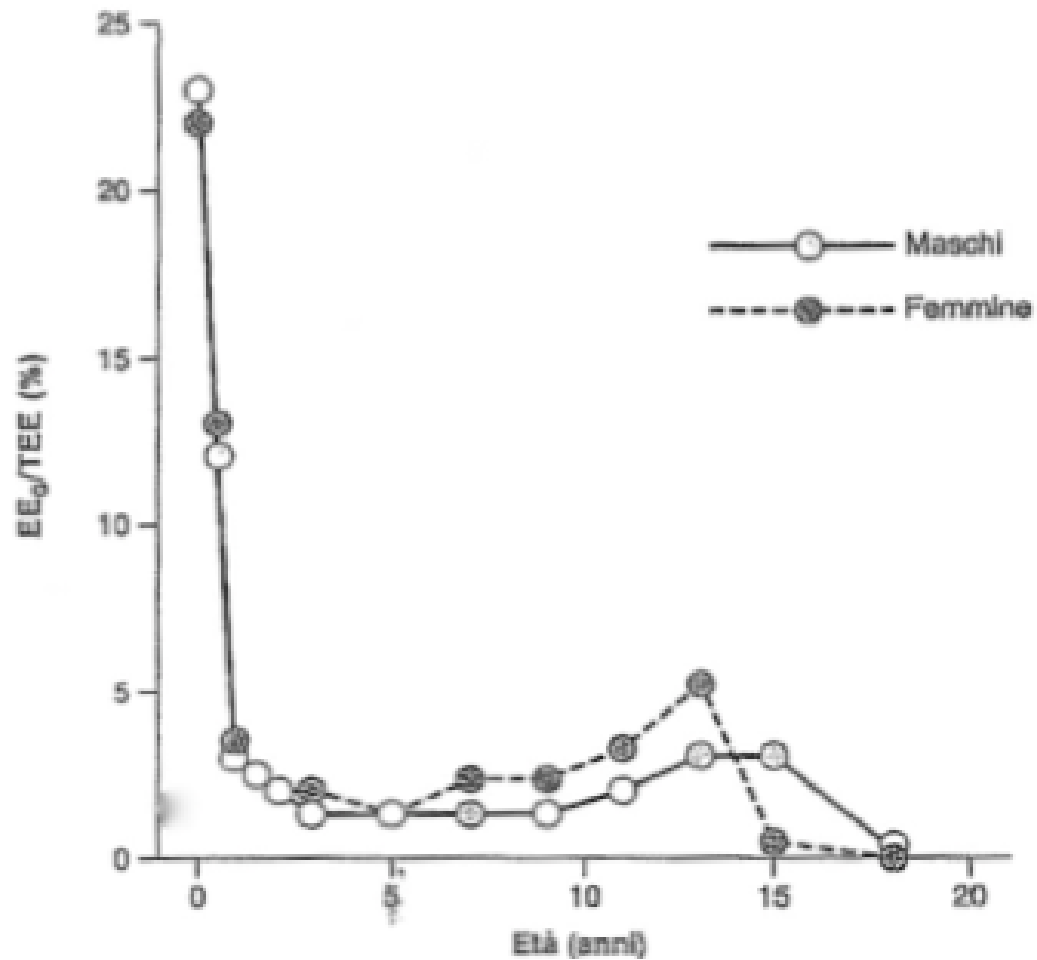
Molnar D *et al.* Eur J Pediatr '85

Maffei C *et al.* Eur J Clin Nutr '92



Il bambino ha bisogno di tanta energia per crescere

## Spesa energetica per l'accrescimento

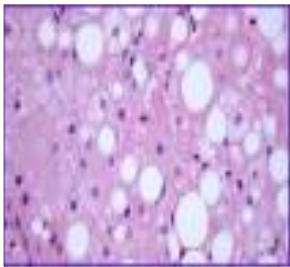
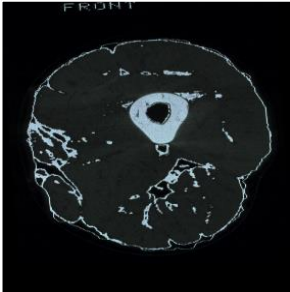


Il bambino obeso non ha un vero  
problema di salute:  
ha solo qualche chilo di troppo!

# OBESITÀ



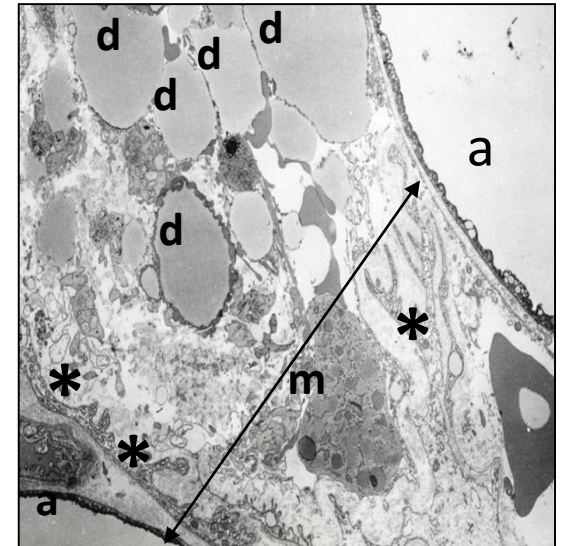
## ACCUMULO ECTOPICO DI GRASSO



*Franzese A, Vajro P, et al.*

*Dig Dis Sci 1997*

## INFIAMMAZIONE



*Sbarbati M, Maffei C, et al.*  
*Pediatrics 2006*

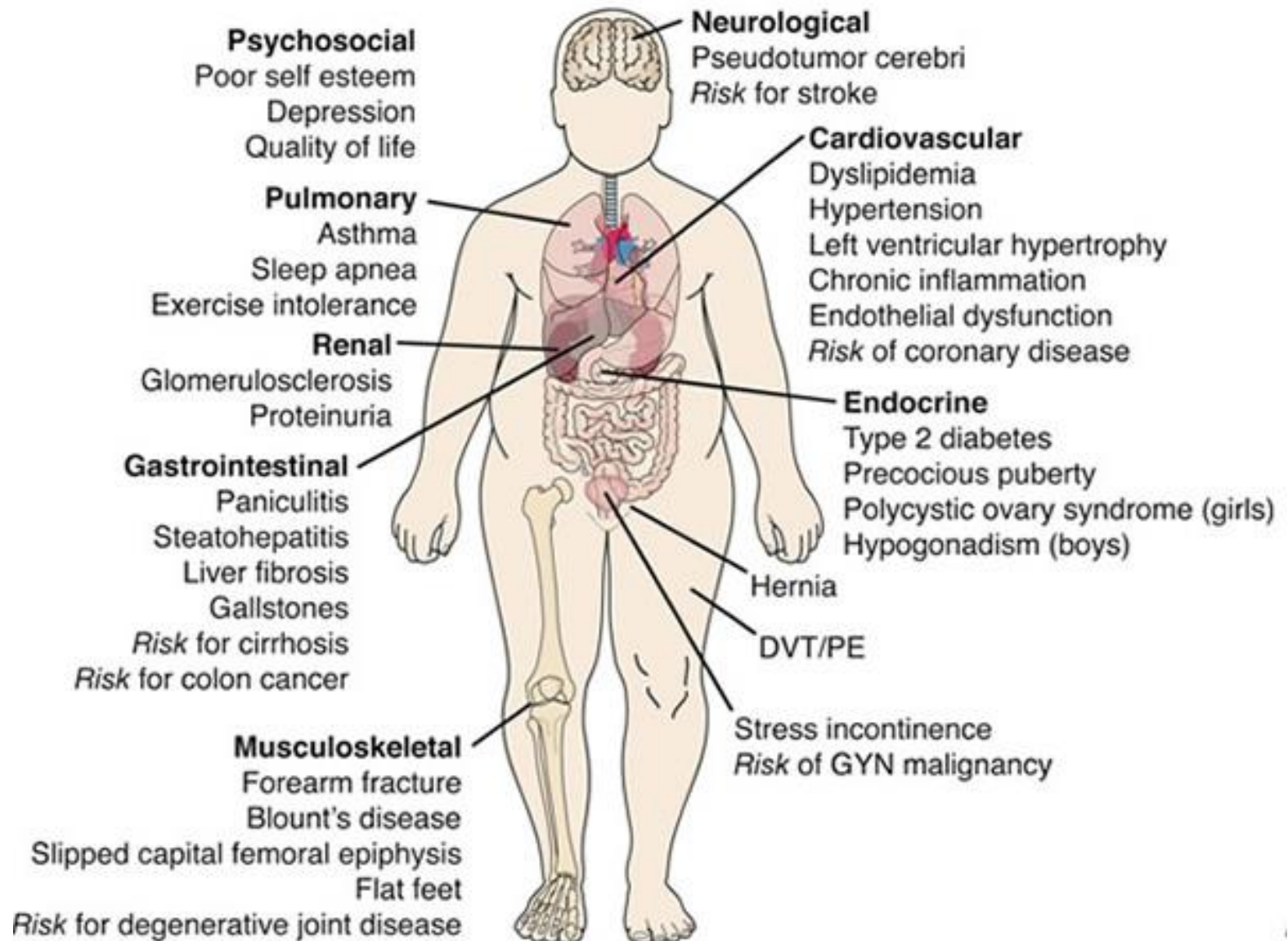
## INSULINO RESISTENZA



**Ipertensione**  
**dislipidemia**  
**IGT – T2D**

**SINDROME  
METABOLICA**

## Complications of Childhood Obesity

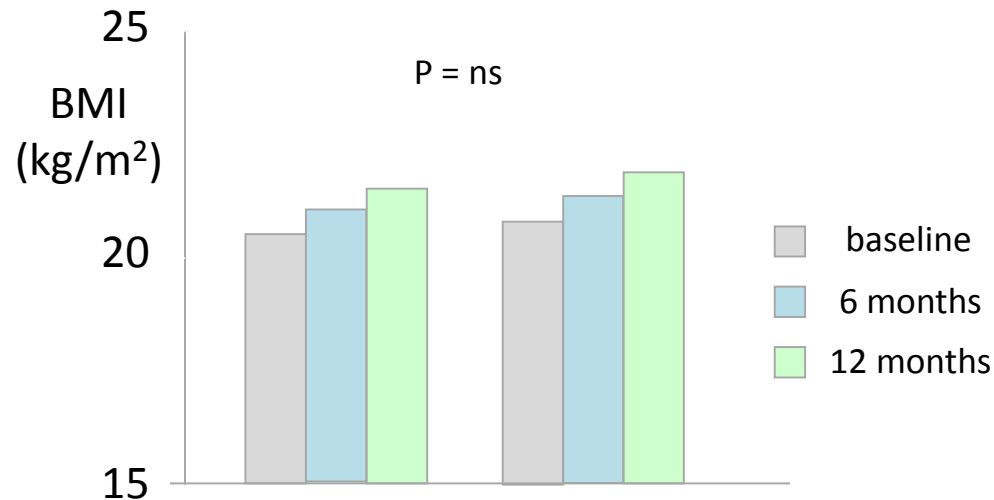


Basta un po' di volontà e il peso in più  
si perde facilmente!

# primary care surveillance and intervention for overweight or obese 5-10-year-old children: the LEAP 2 randomised controlled trial

## INTERVENTION

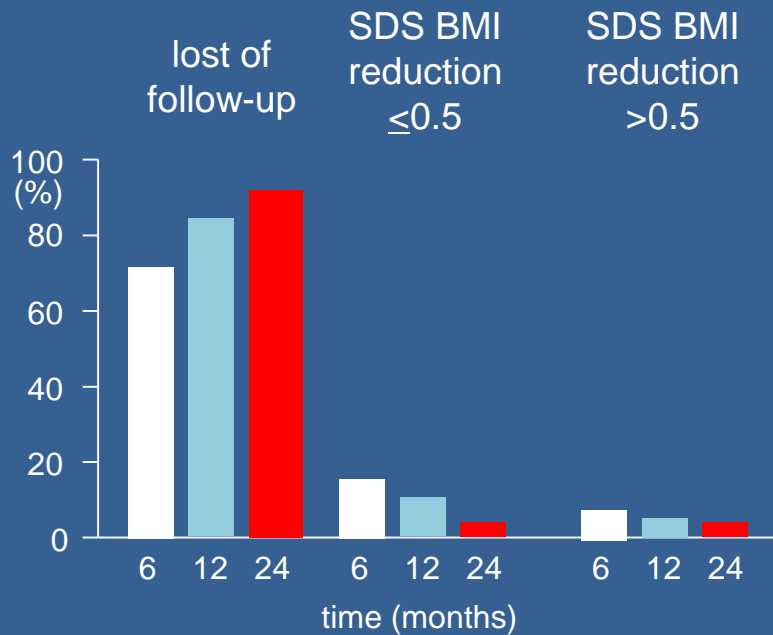
4 standard consultations over 12 weeks targeting change in nutrition, physical activity, & sedentary behaviour, supported by purpose designed family materials



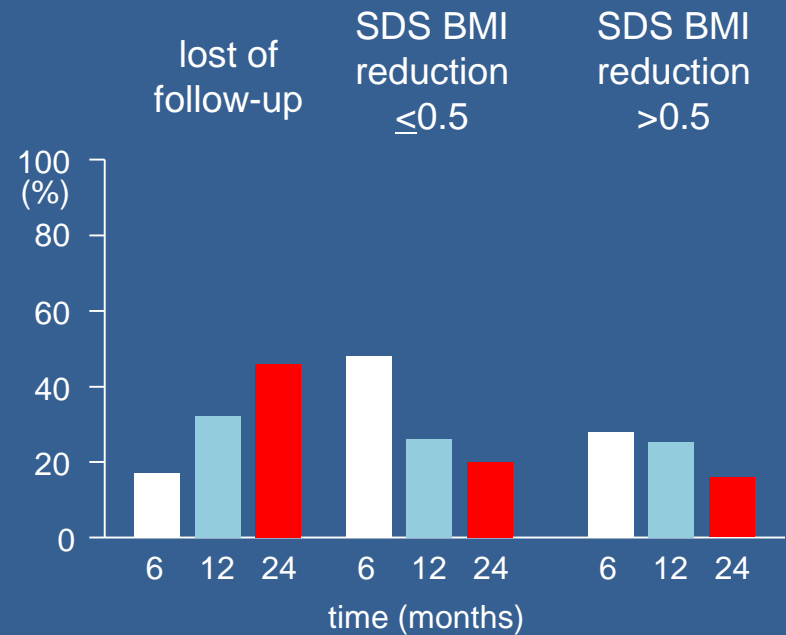
primary care screening followed by brief counselling is not effective in overweight or mildly obese children and it would be very costly if universally implemented

# Two-year Follow-up in 21,784 Overweight Children and Adolescents With Lifestyle Intervention

## 129 treatment centers



## 5 centers with the highest success rate

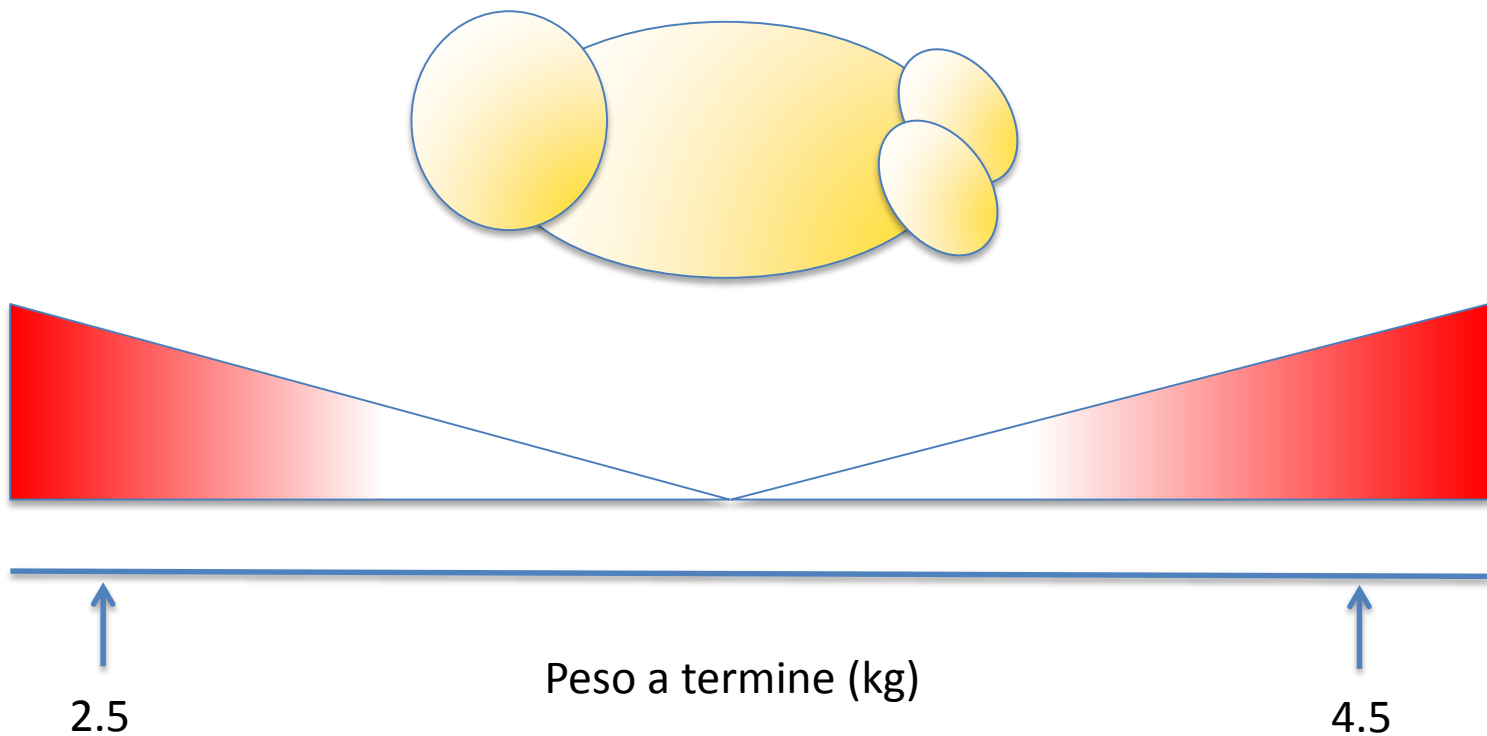




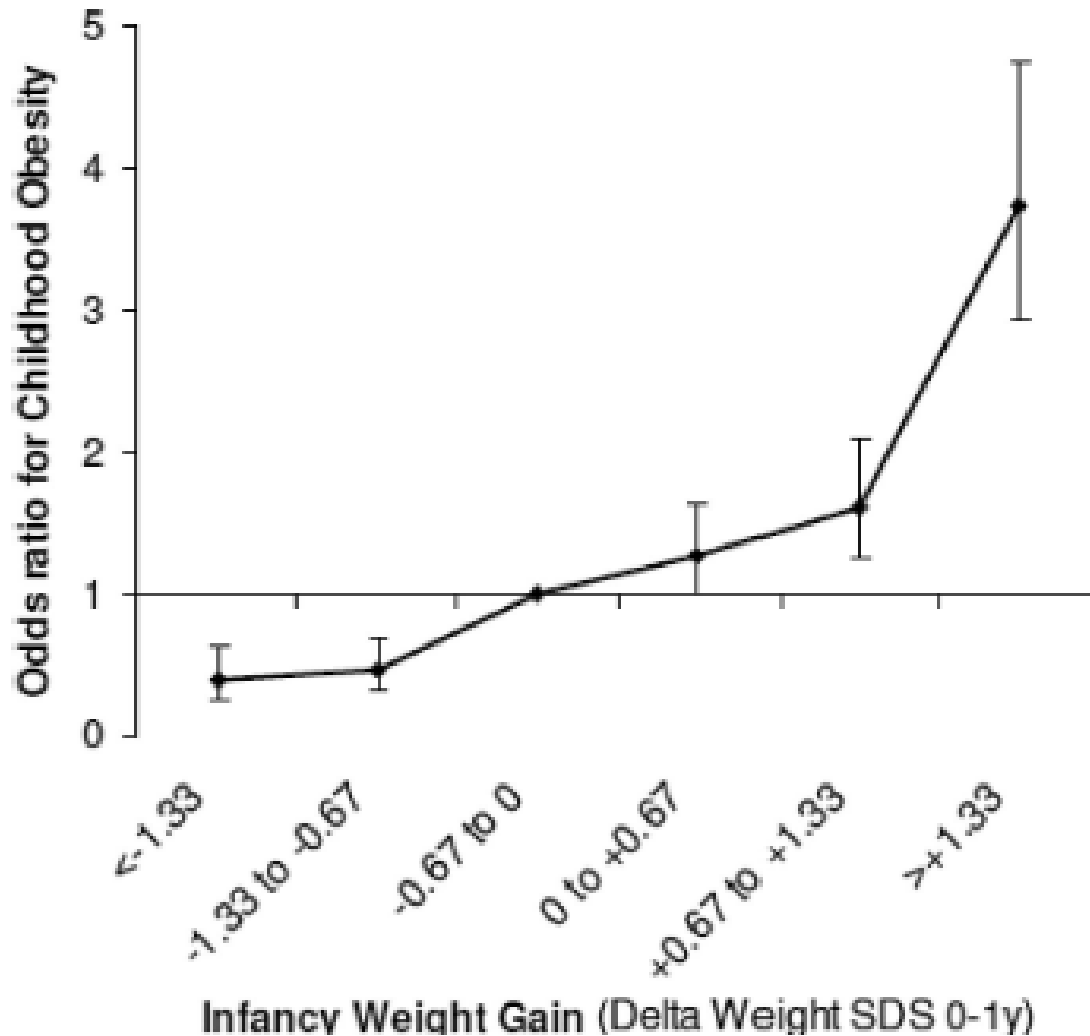
Se un bambino nasce con basso peso bisogna alimentarlo con abbondanza per fargli recuperare presto il peso..... in difetto!

# Fattori di rischio di obesità

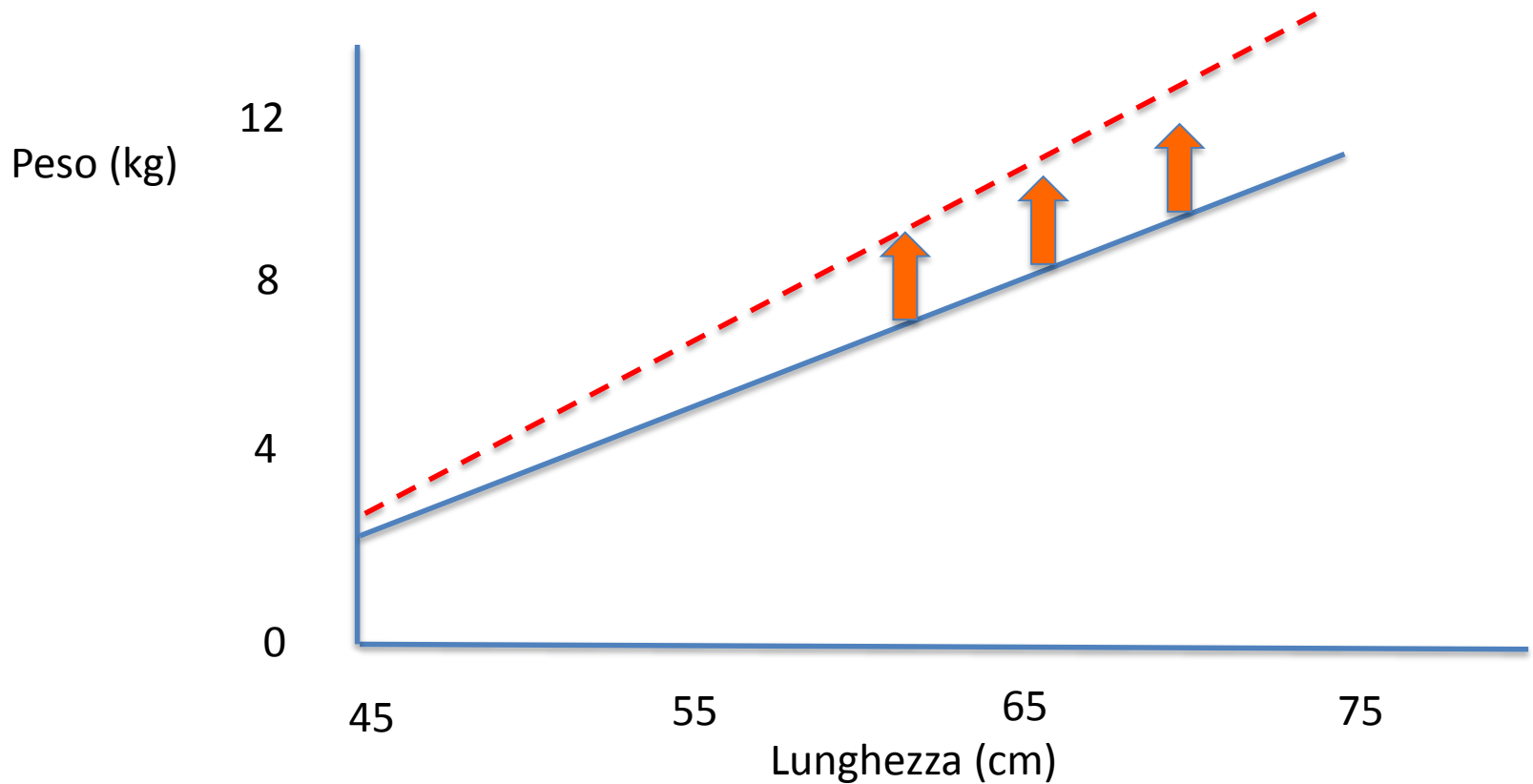
## Peso alla nascita



# Odds ratio for childhood obesity by infant weight gain between 0 and 1 year adjusted for sex, age, a weight

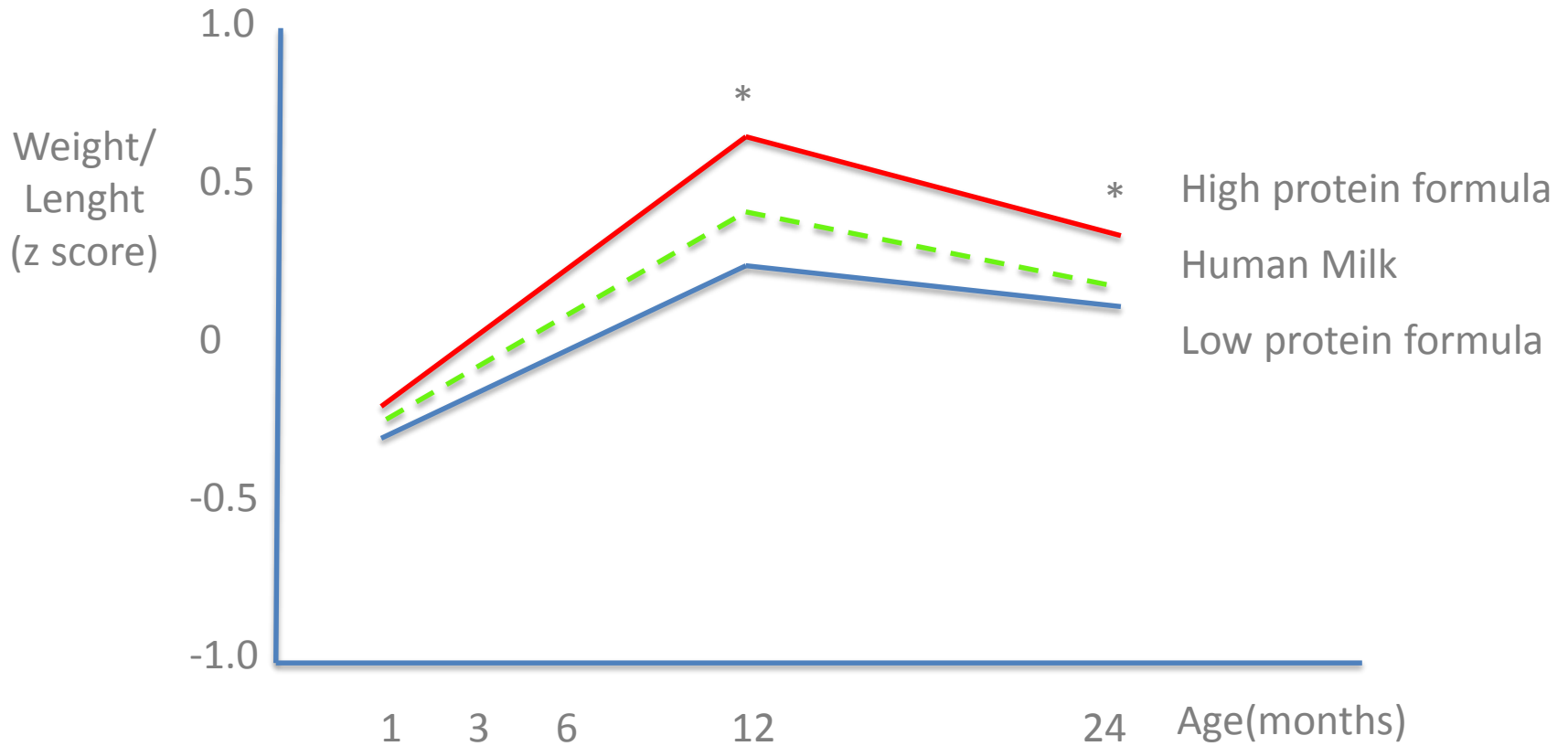


# Velocità di crescita primo anno



Se il latte della mamma scarseggia,  
diamo il latte di vacca che è buono  
e fa crescere bene!

# FORMULA PROTEIN CONTENT AND WEIGHT GAIN A RANDOMIZED CLINICAL TRIAL



Se il bambino viene allattato al seno  
non diventerà mai obeso!

SPECIAL ARTICLE

## Myths, Presumptions, and Facts about Obesity

Krista Casazza, Ph.D., R.D., Kevin R. Fontaine, Ph.D., Arne Astrup, M.D., Ph.D.,  
Leann L. Birch, Ph.D., Andrew W. Brown, Ph.D., Michelle M. Bohan Brown, Ph.D.,  
Nefertiti Durant, M.D., M.P.H., Gareth Dutton, Ph.D., E. Michael Foster, Ph.D.,  
Steven B. Heymsfield, M.D., Kerry McIver, M.S., Tapan Mehta, M.S.,  
Nir Menachemi, Ph.D., P.K. Newby, Sc.D., M.P.H., Russell Pate, Ph.D.,  
Barbara J. Rolls, Ph.D., Bisakha Sen, Ph.D., Daniel L. Smith, Jr., Ph.D.,  
Diana M. Thomas, Ph.D., and David B. Allison, Ph.D.

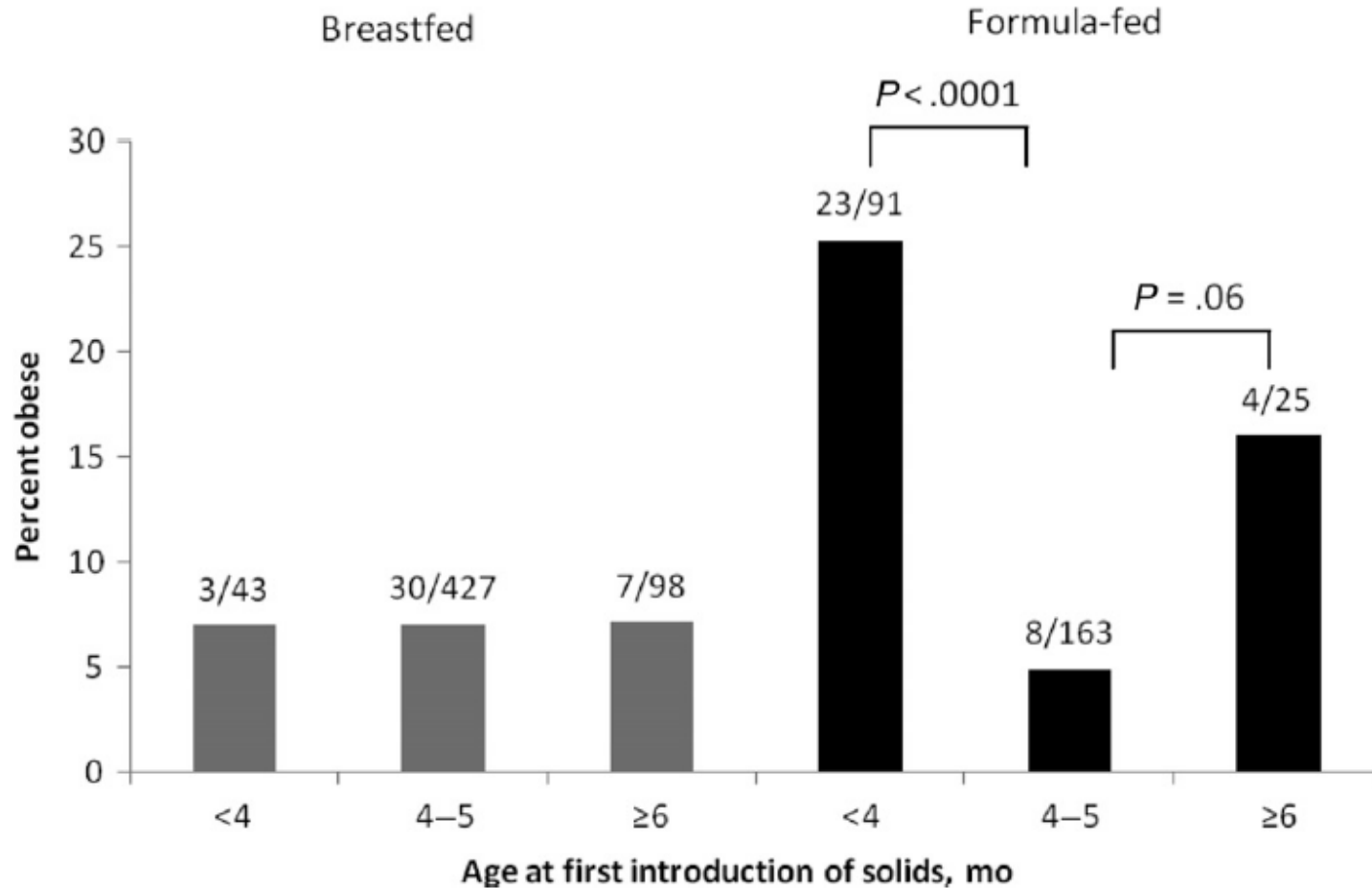
### **BREAST-FEEDING AND OBESITY**

“.... Although existing data indicate that breast-feeding does not have important antiobesity effects in children, it has other important potential benefits for the infant and mother and should therefore be encouraged. “



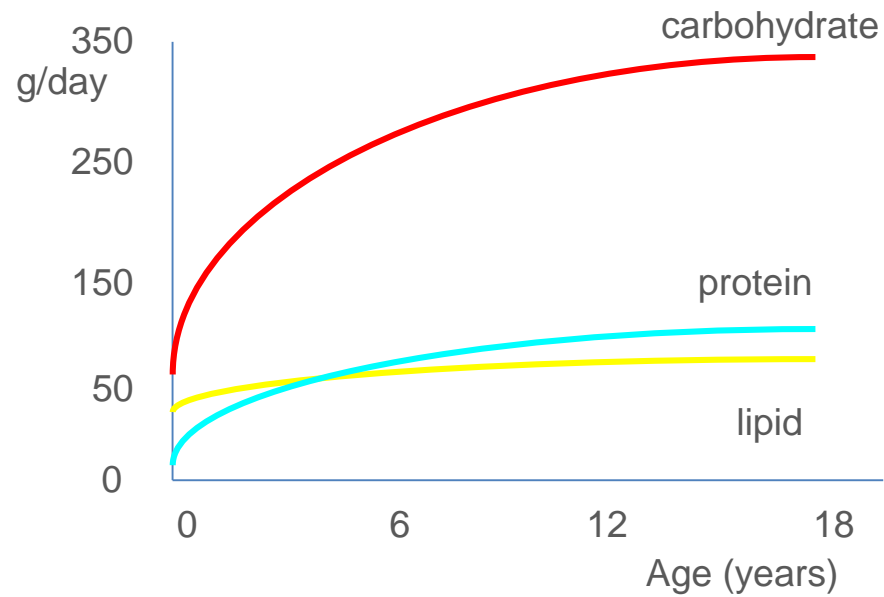
Se il piccolo ha tanta fame e cresce bene posso introdurre gli alimenti solidi anche presto, dopo i primissimi mesi di vita

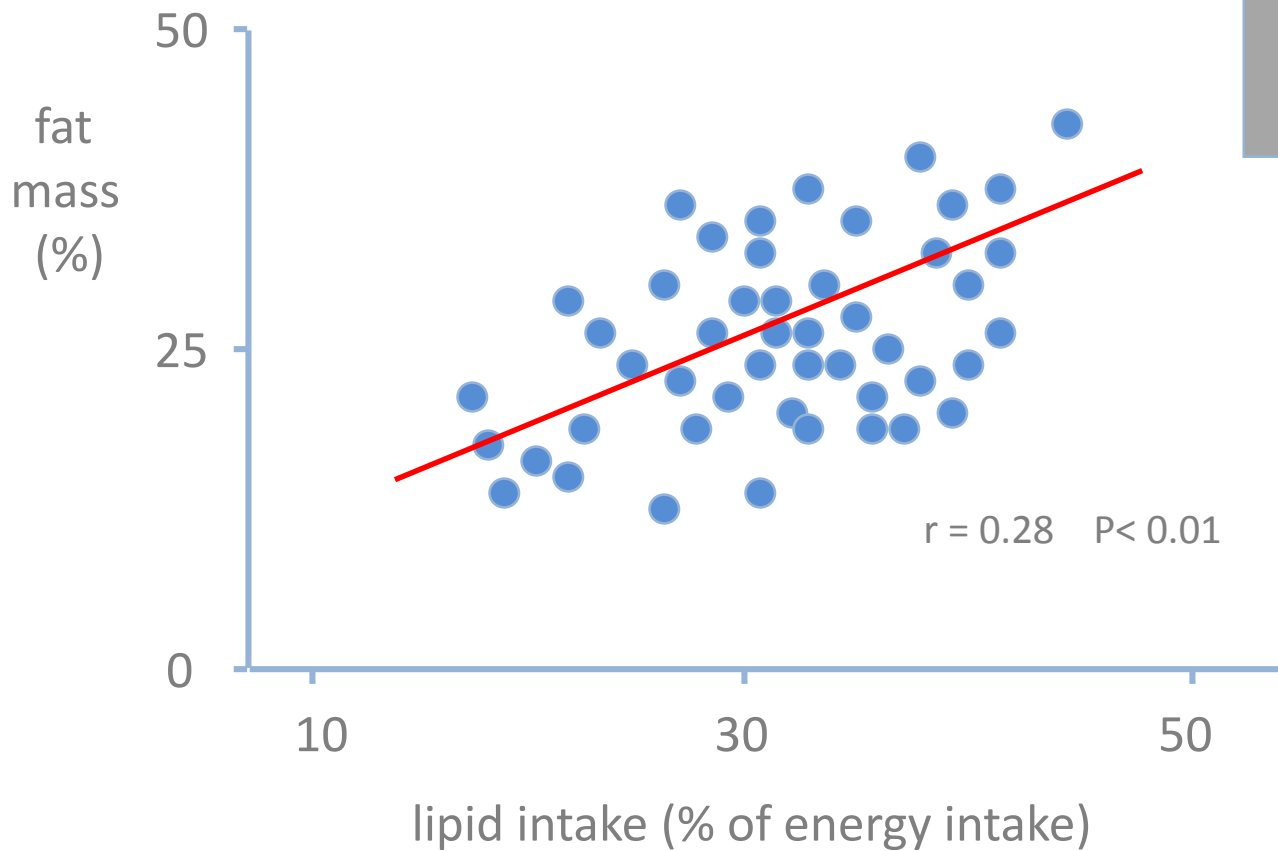
# Timing of Solid Food Introduction and Risk of Obesity in Preschool-Aged Children



Una caloria è una caloria: poco importa se è da proteine, grassi o carboidrati

# nutrient requirements





## fatty food

more palatable

high energy density

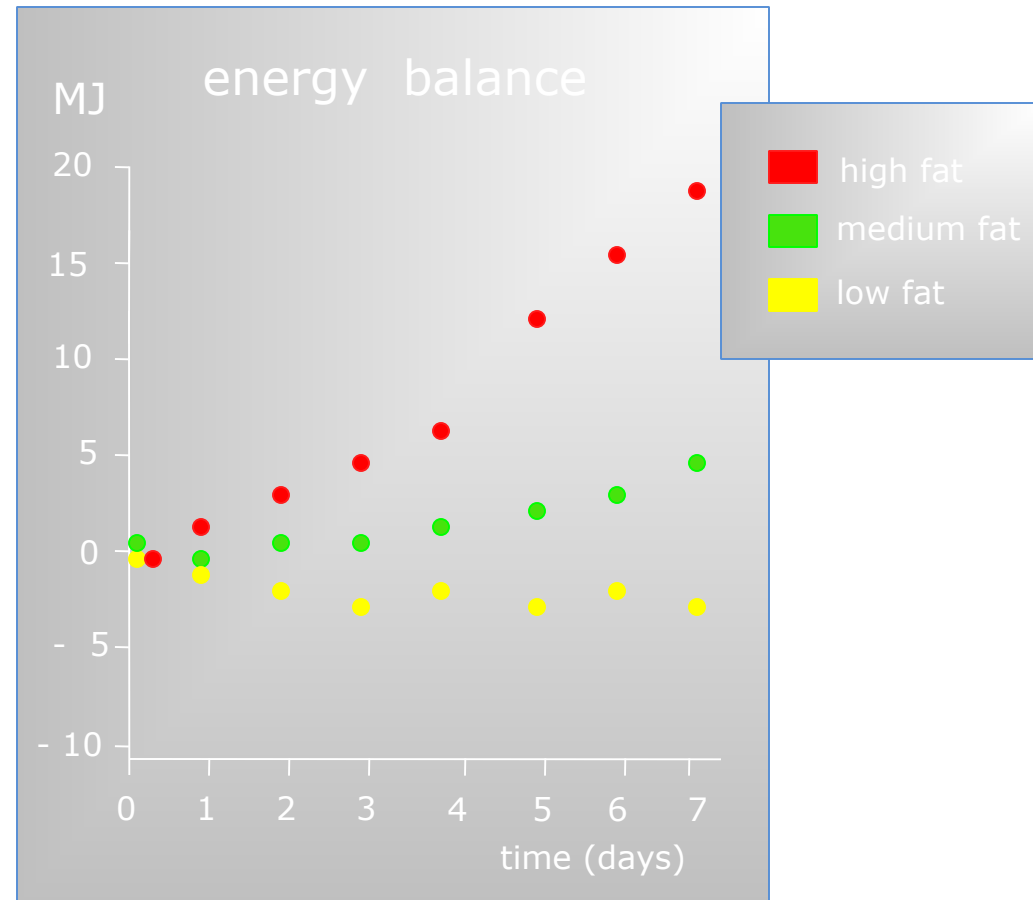
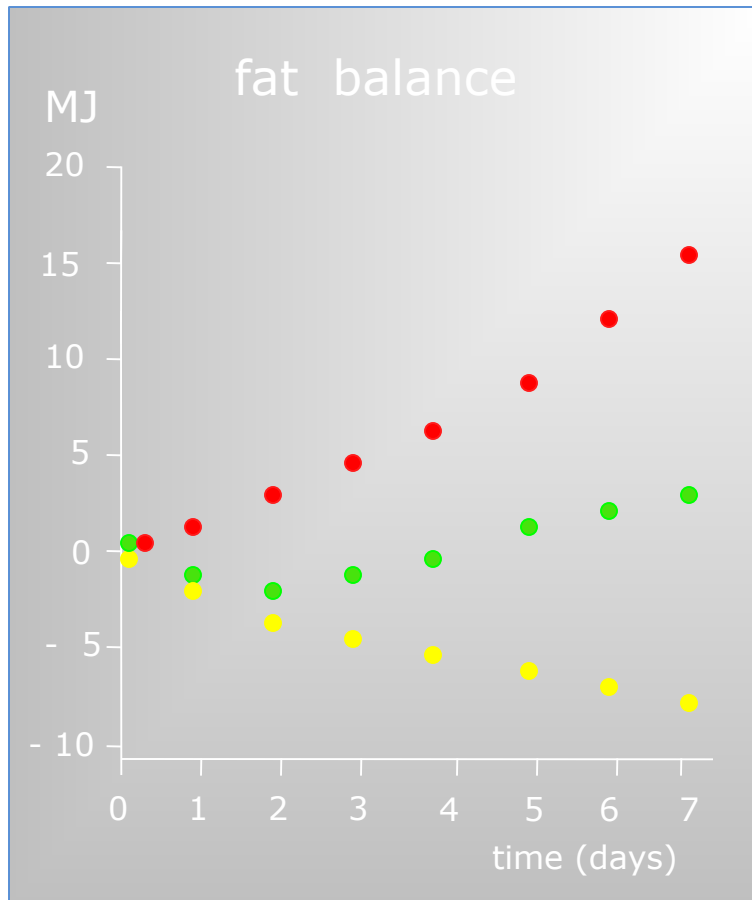
less satiating

Klesges RC *et al.* AJCN '94

Gazzaniga JM, *et al.* AJCN '93

Maffeis C *et al.* Int J Obes '96

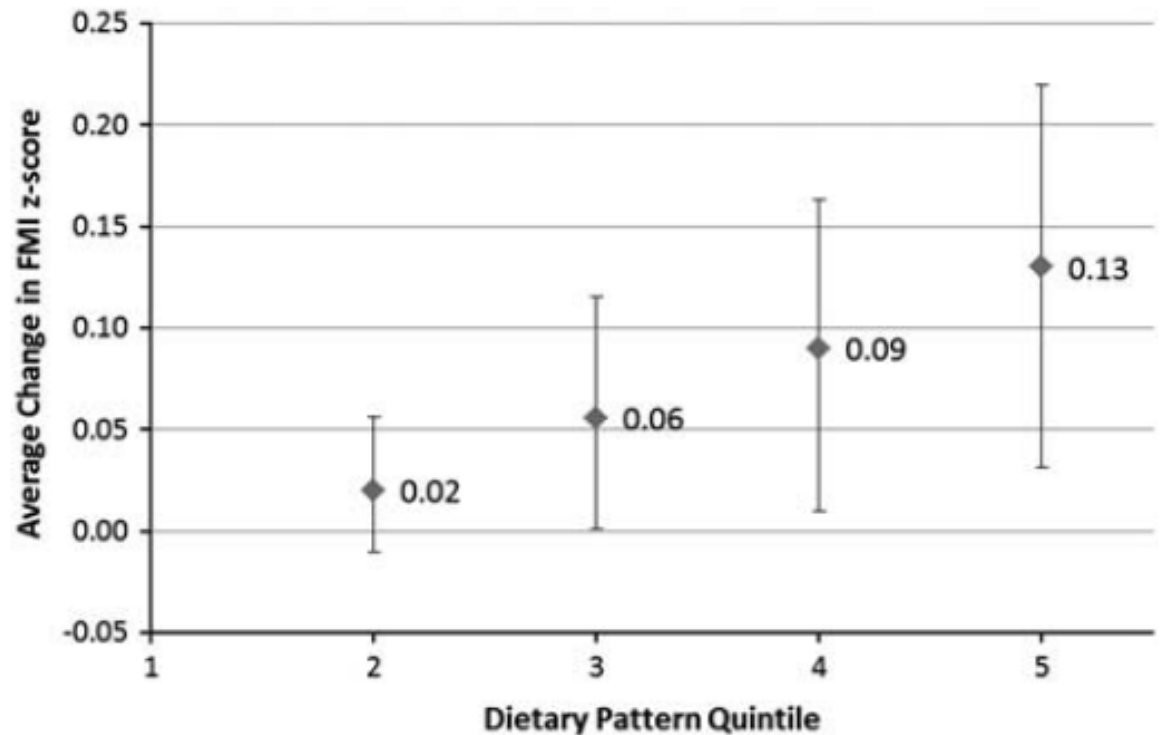
# covert manipulation of dietary fat and energy density: effect on substrate flux and food intake in men eating ad libitum



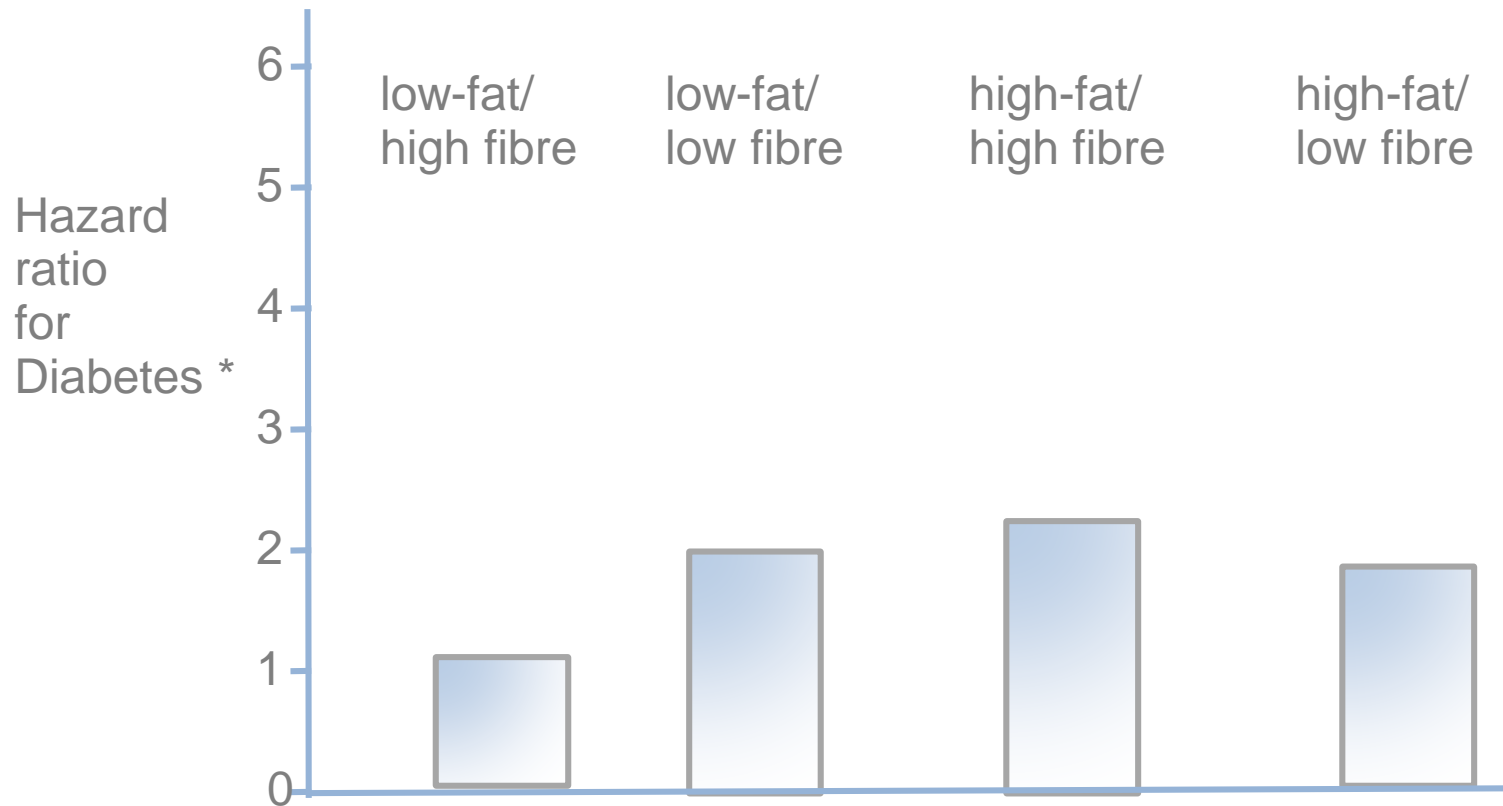
# dietary pattern prospectively associated with increased adiposity during childhood and adolescence

High Risk  
Dietary Pattern

Energy-dense  
High-fat  
Low-fiber



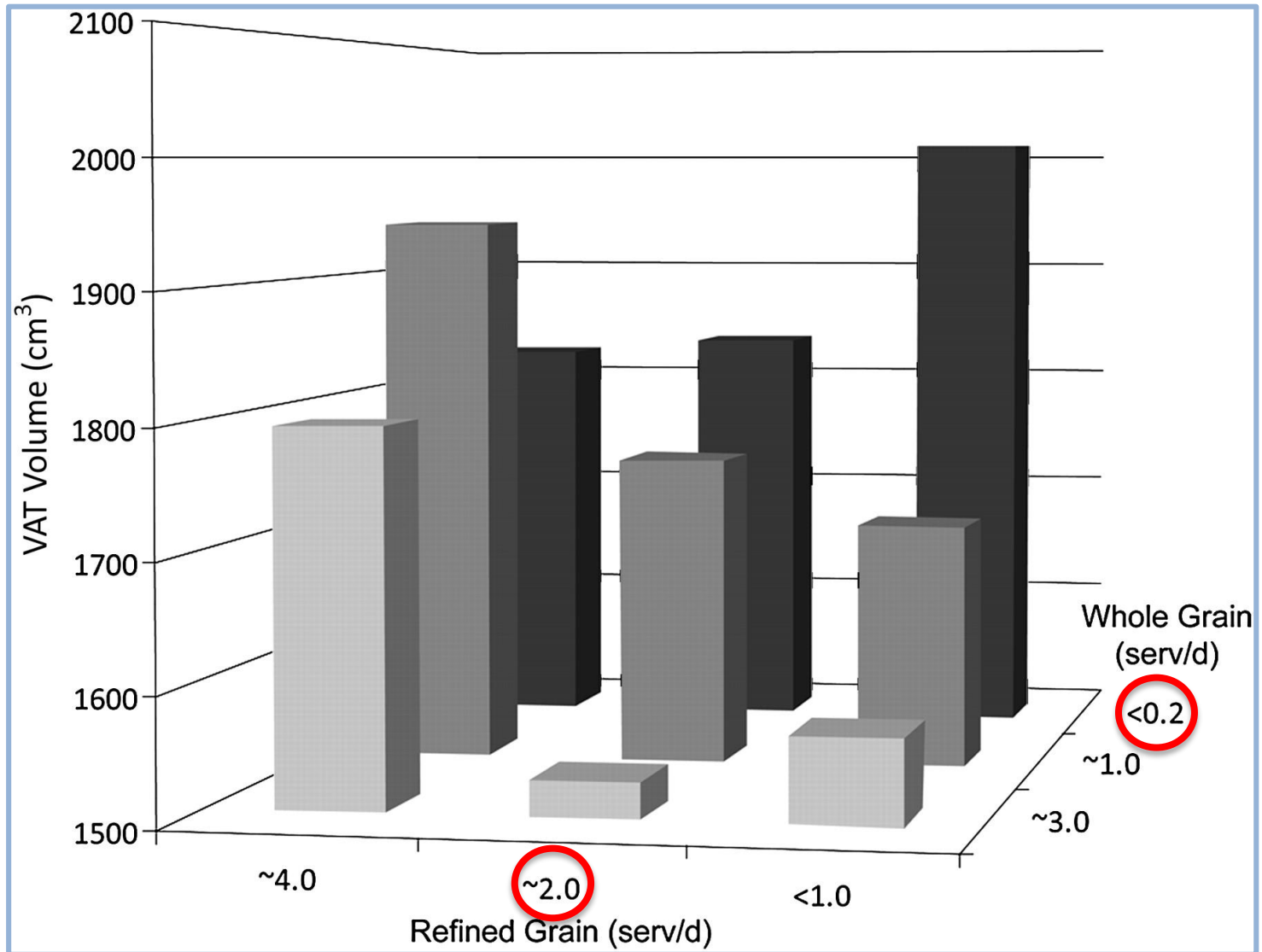
# high-fibre, low-fat diet predicts long-term weight loss and decreased type 2 diabetes risk: the Finnish Diabetes Prevention Study



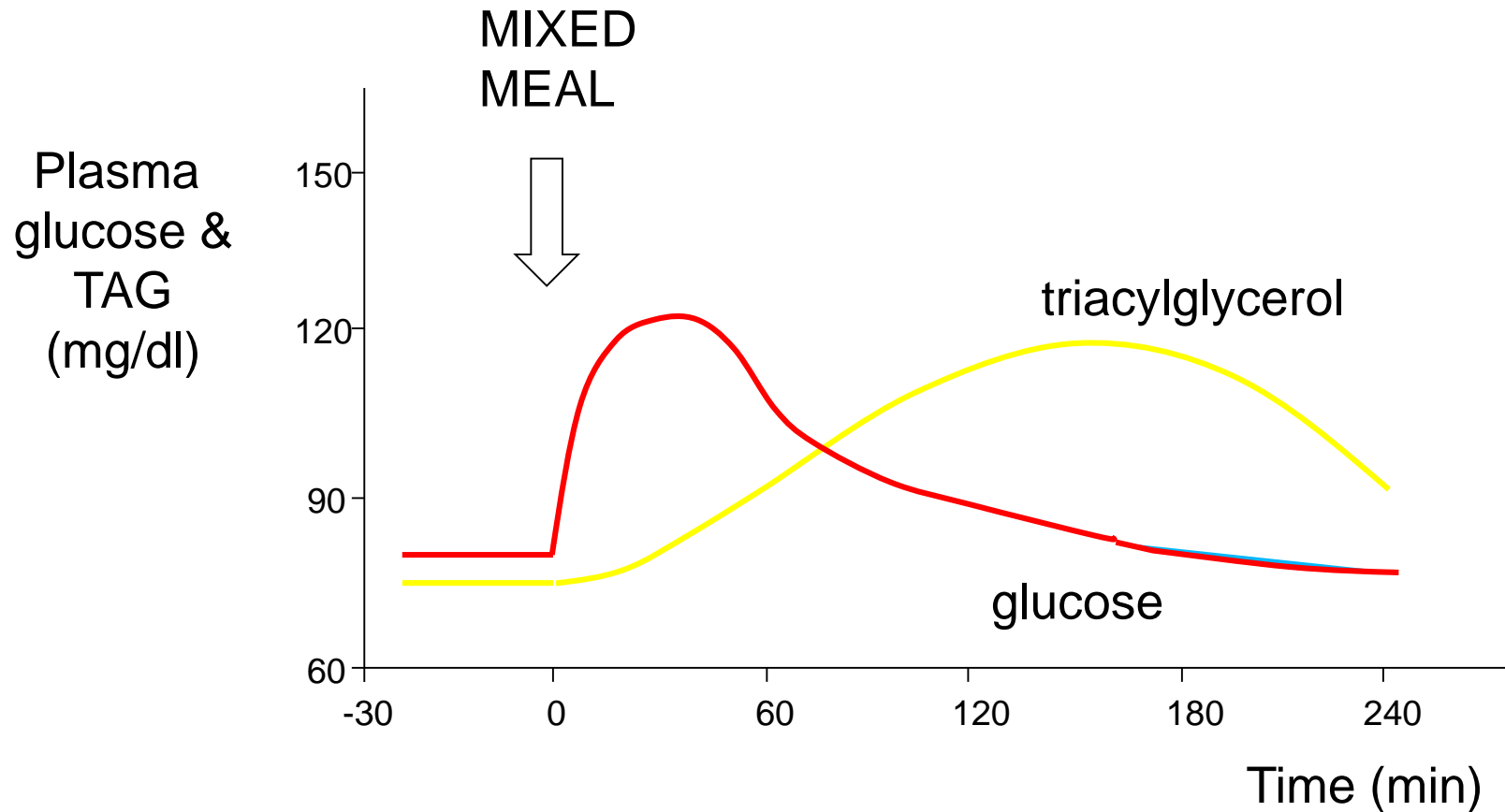
•Adjusted for: group assignment, age, sex, baseline BW, fat & fibre intake, baseline 2-h glucose, baseline and follow-up period physical activity, weight change



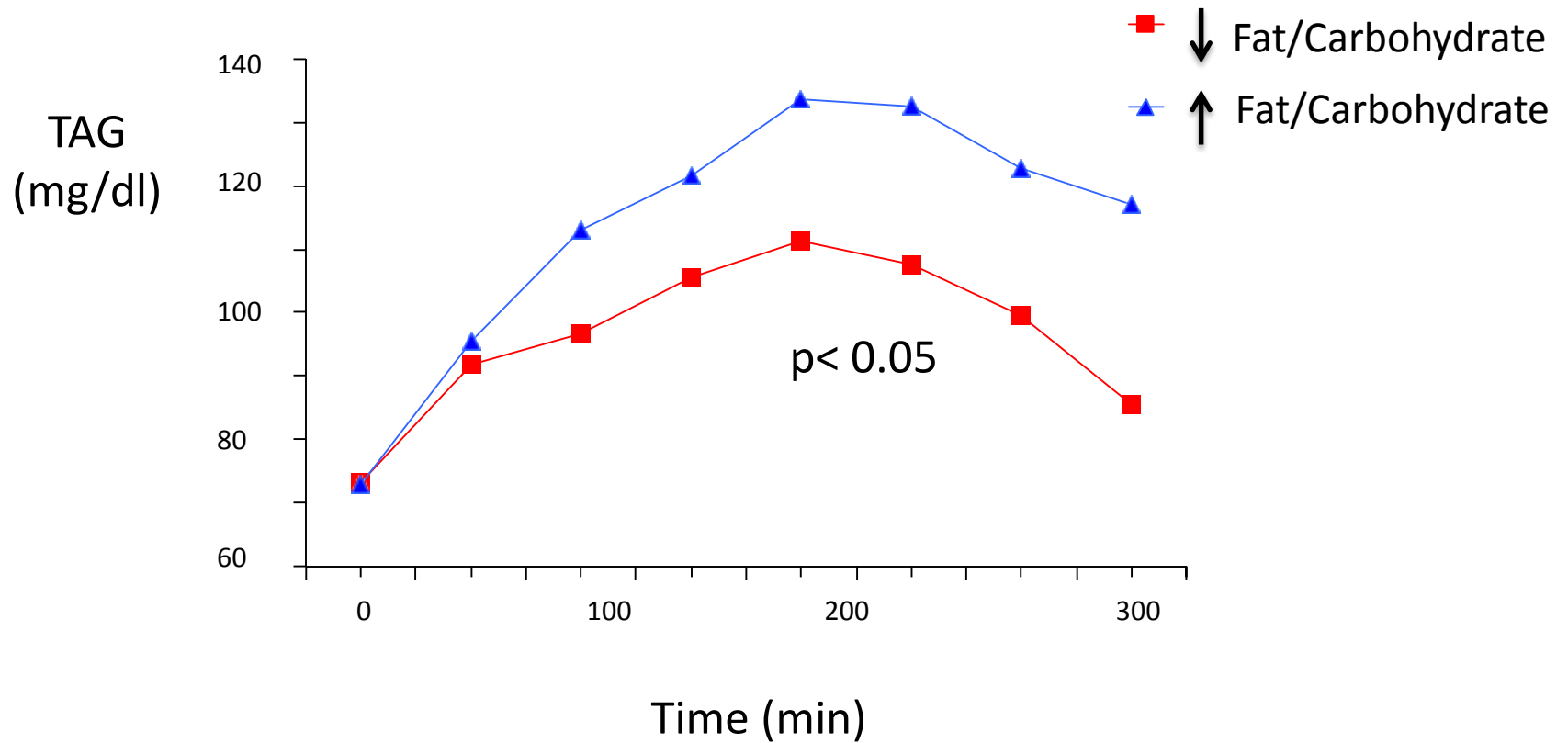
# Joint classification of whole- and refined-grain intake on visceral adipose tissue (VAT) volume



# Blood glucose and triacylglycerol postprandial profile

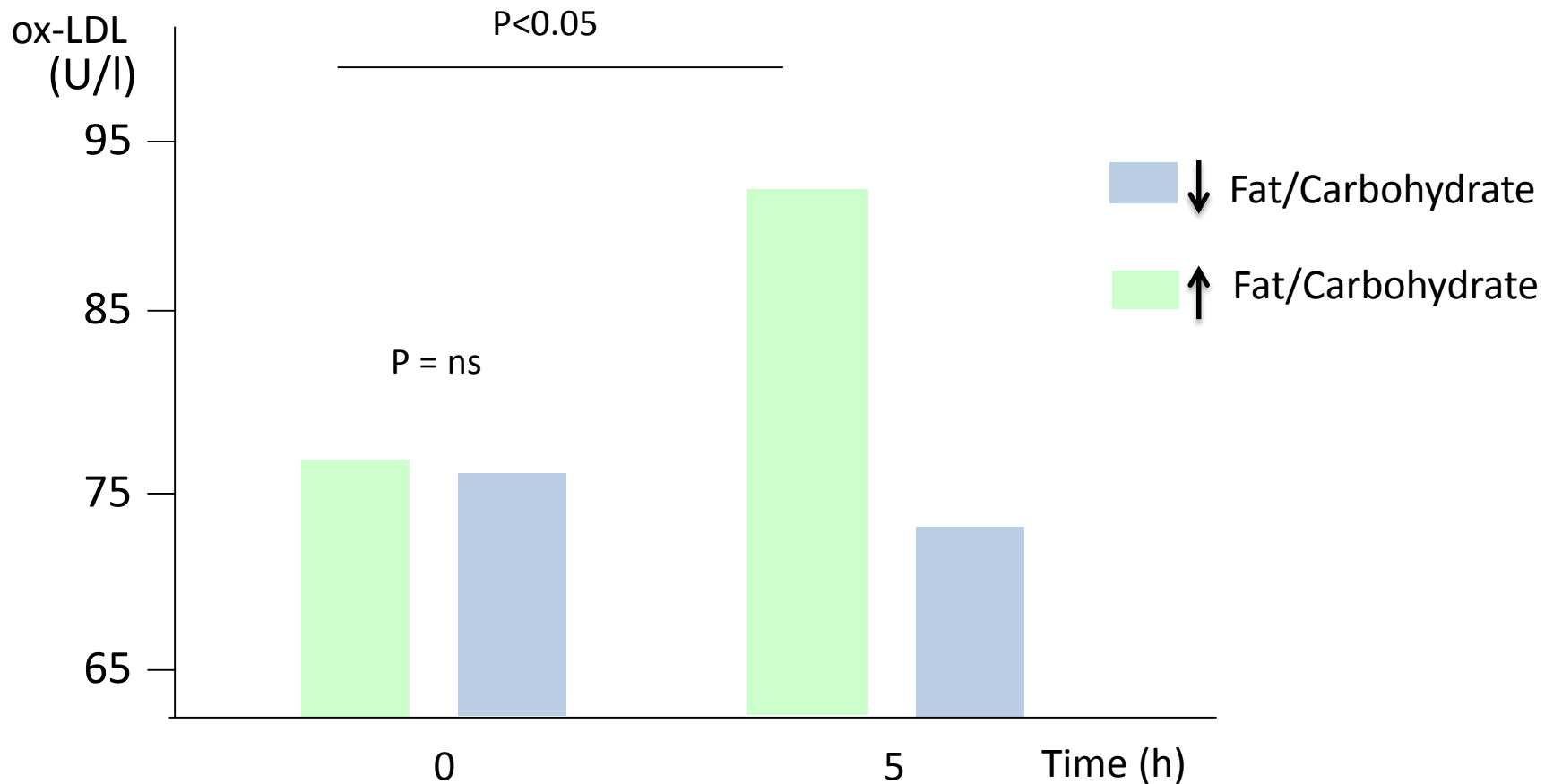


# Postprandial triacylglycerol profile after two isocaloric, isoproteic meals with different fat and carbohydrate content in obese children



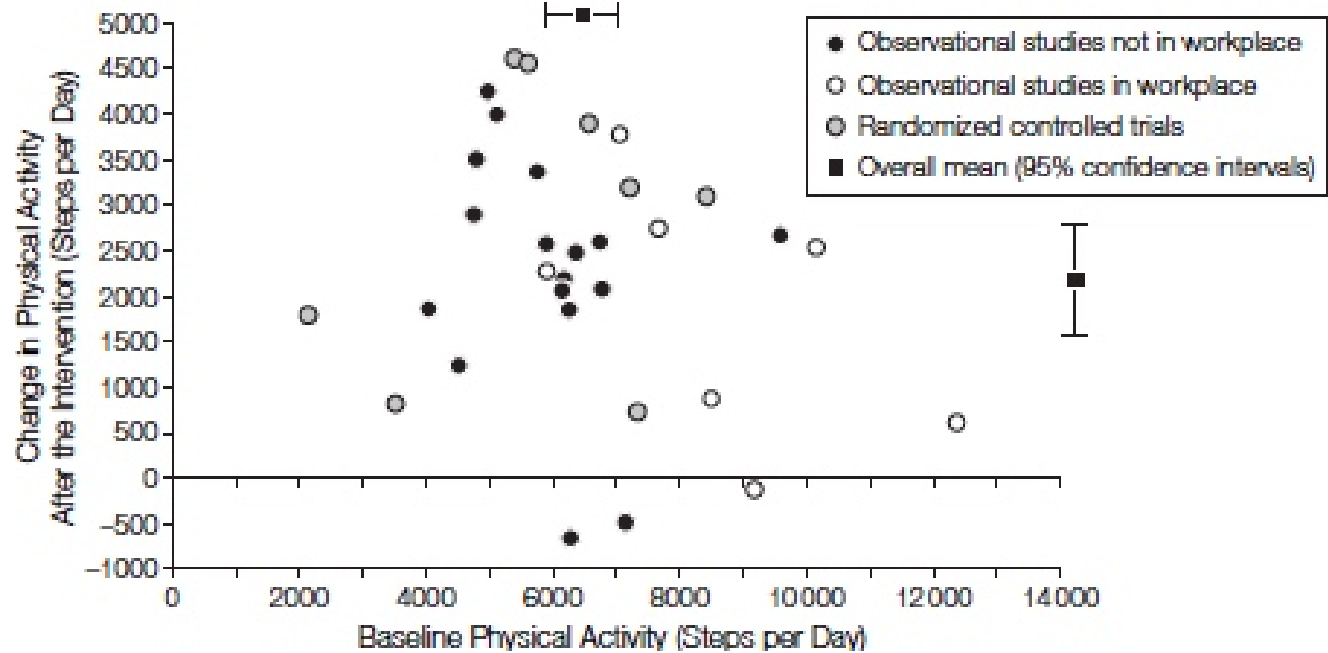
## POSTPRANDIAL PRO-ATEROGENIC PROFILE:

change of oxidized lipoprotein concentration in obese children after two isocaloric, isoproteic meals with a different fat and carbohydrate content



Per calare si deve fare attività  
fisica ad elevata intensità!

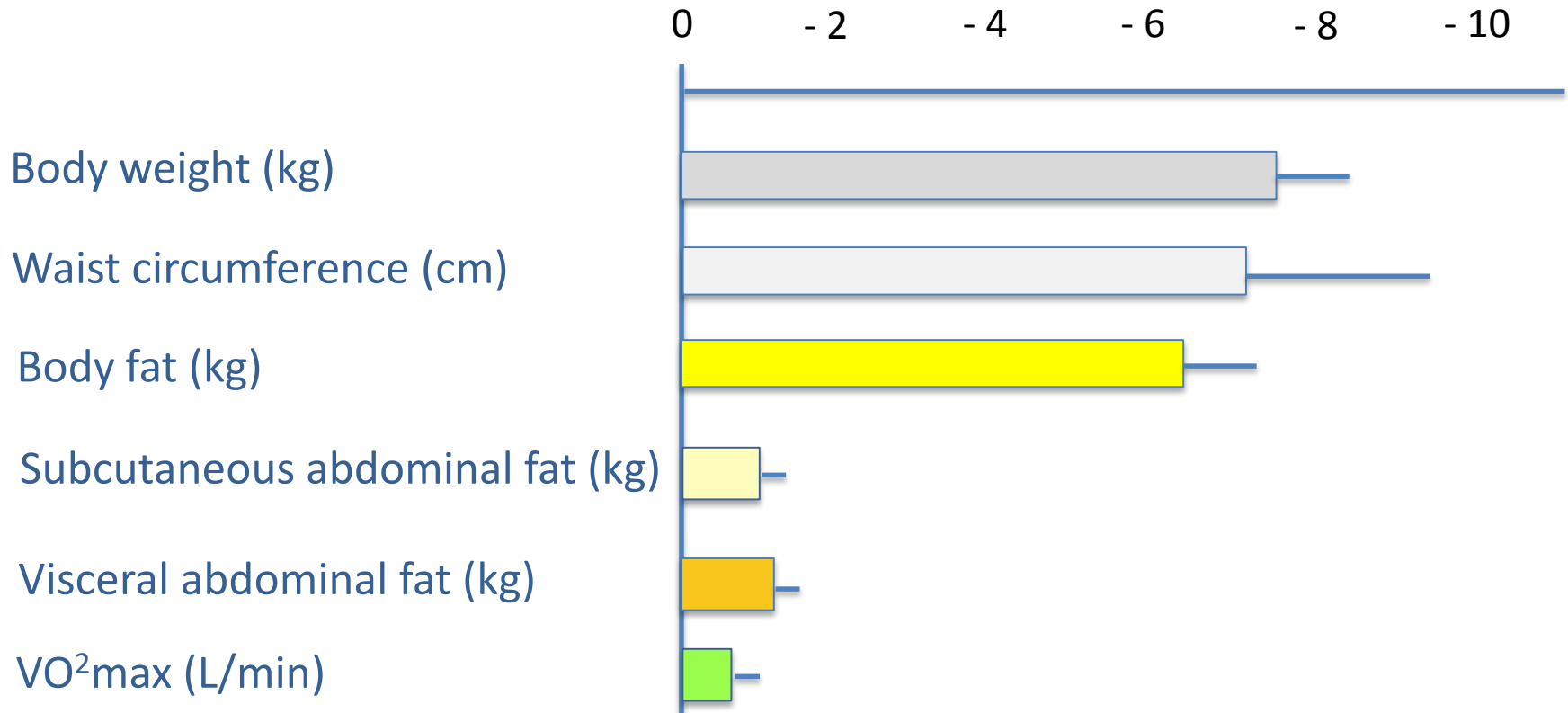
# Using pedometers to increase physical activity and improve health



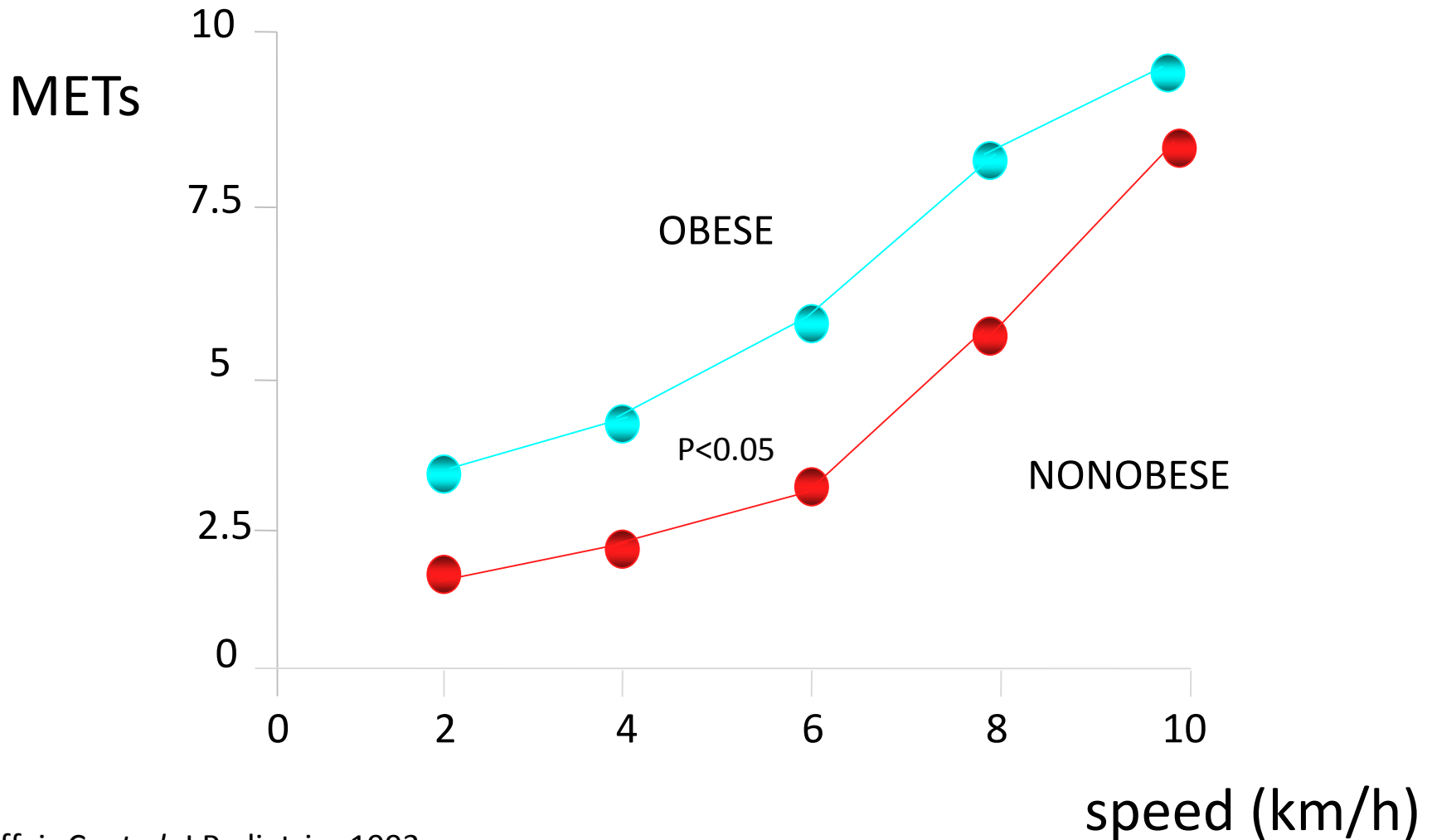
Characteristic	No. of Studies Reporting This Characteristic (No. of Participants)	Preintervention, Mean (SD)	Change Postintervention	
			Mean Change (95% Confidence Interval) <sup>b</sup>	P Value
BMI	18 (562)	30 (3.4)	-0.38 (-0.05 to -0.72)	.03
Blood pressure, mm Hg				
Systolic	12 (468)	129 (7.5)	-3.8 (-1.7 to -5.9)	<.001
Diastolic	12 (468)	79 (4.5)	-0.3 (0.02 to -0.46)	.001

# Efficacy of a 12 Weeks Exercise Program without Diet in Reducing Obesity in Men

Exercise: brisk walking/light jogging, 80% max HR, 700 kcal/day.

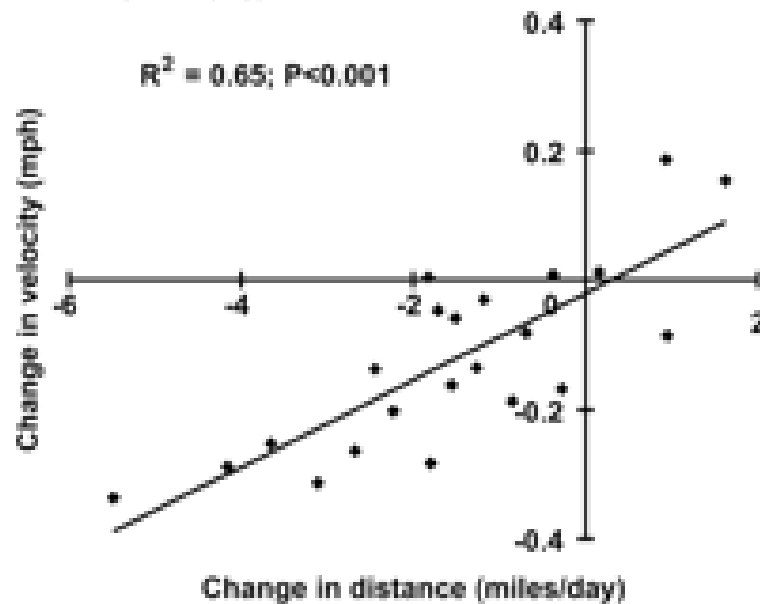
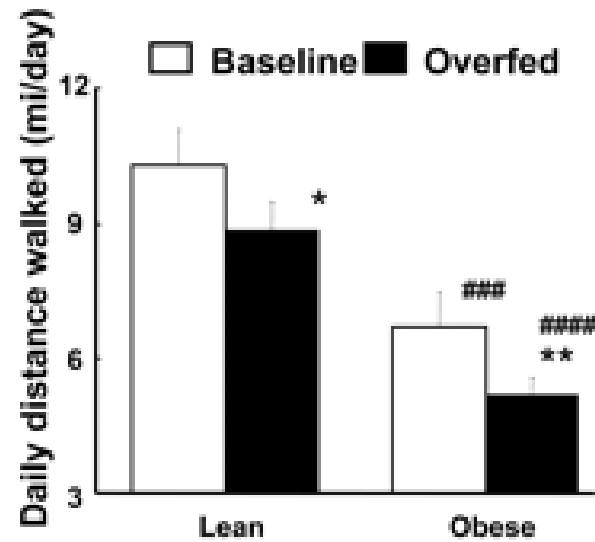
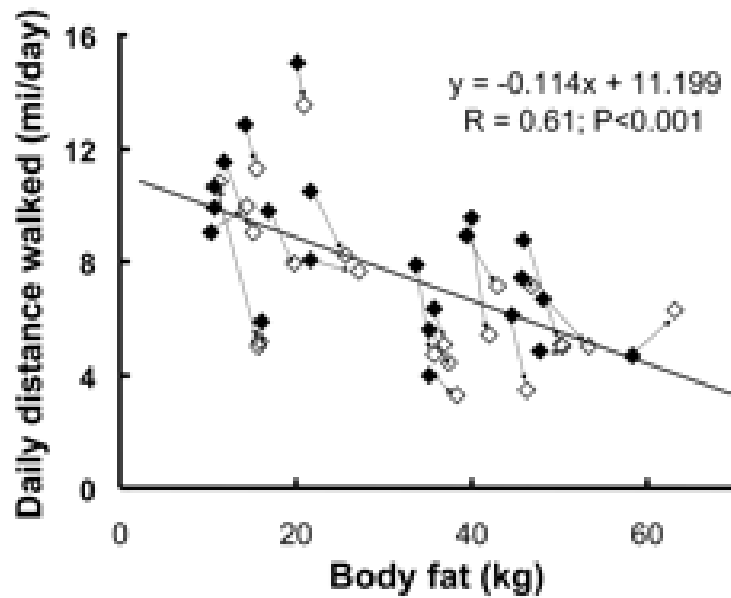


# energy expenditure during walking and running in obese and nonobese prepubertal children

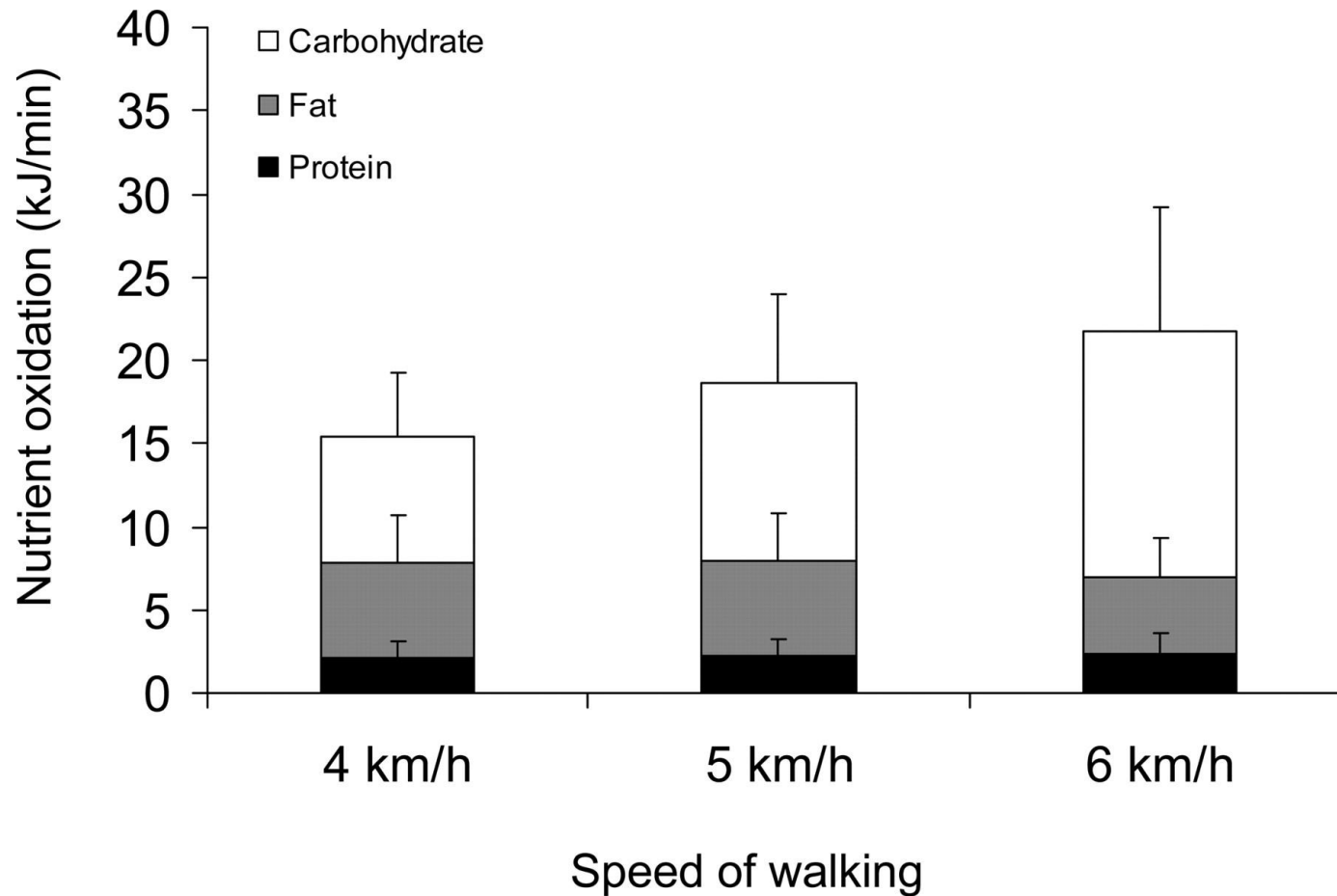




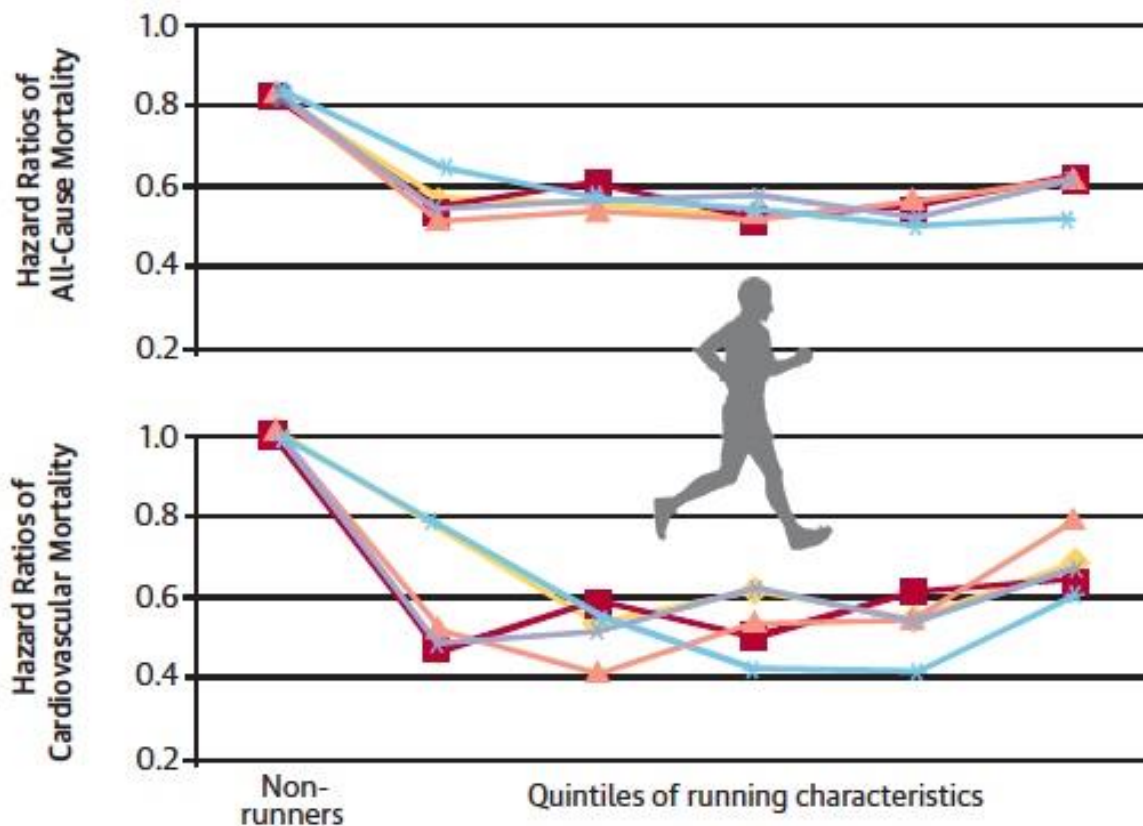
# the role of free-living daily walking in human weight gain and obesity



# Nutrient oxidation measured during walking at speeds of 4, 5, and 6 km/h, respectively, in a group of obese prepubertal children

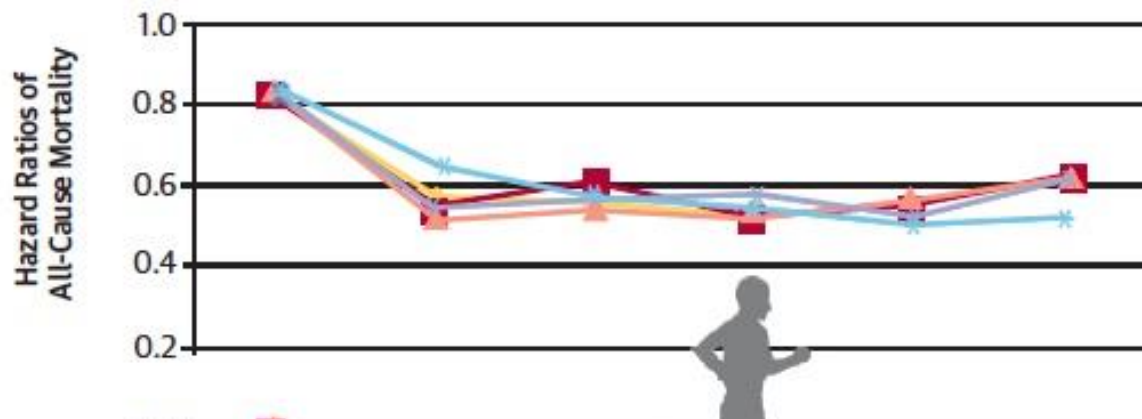


# Leisure-Time Running Reduces All-Cause and Cardiovascular Mortality Risk In a 15-year follow-up

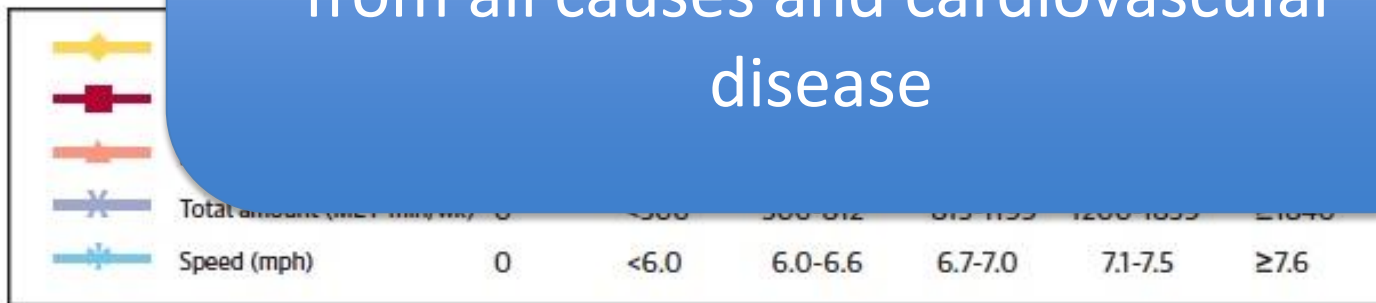


	Time (min/wk)	0	<51	51-80	81-119	120-175	≥176
	Distance (miles/wk)	0	<6	6-8	9-12	13-19	≥20
	Frequency (times/wk)	0	1-2	3	4	5	≥6
	Total amount (MET-min/wk)	0	<506	506-812	813-1199	1200-1839	≥1840
	Speed (mph)	0	<6.0	6.0-6.6	6.7-7.0	7.1-7.5	≥7.6

# Leisure-Time Running Reduces All-Cause and Cardiovascular Mortality Risk In a 15-year follow-up



Running, even 5 to 10 min/day and at slow speeds <6 miles/h, is associated with markedly reduced risks of death from all causes and cardiovascular disease



Non preoccupiamoci:  
se la “dieta” fallisce  
ci sono farmaci e chirurgia

Expert Committee Recommendations Regarding the Prevention,  
Assessment, and Treatment of Child and Adolescent  
Overweight & Obesity: Summary Report

Barlow SE & the Expert Committee Pediatrics 2007 (suppl.) (modified)

## Obiettivi comportamentali della terapia

Allattamento al seno

Colazione

Pasti consumati in famiglia (vs Fast Food)

Alimentazione bilanciata in nutrienti (RDA)

Frutta e vegetali, Fibra

Densità energetica dei cibi e dei pasti

Porzioni

Bevande zuccherate

(Calcio)

Video-esposizione

Attività fisica

# Take home message

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L'obesità è una malattia, che va prevenuta e curata con attenzione.

Gli obiettivi per l'intervento sono chiari.

Gli strumenti: accanto all'alimentazione, l'attività fisica svolge un ruolo di assoluto rilievo.

Il risultato potrà essere favorevole nel medio-lungo termine solamente se famiglia, pediatra, scuola (e società) collaboreranno attivamente e con pazienza allo scopo.

**SAVE THE DATE**

**VIII° CONGRESSO NAZIONALE:**

**NUTRIZIONE, METABOLISMO E DIABETE NEL  
BAMBINO E NELL'ADOLESCENTE**

**La pediatria dà i... “numeri”?**

Hotel CTC Best Western

Verona, 25-26 settembre 2014