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Weight Loss and maintenance: It's calories, Not Pasta or Carbs

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Obesity

- **Multifactorial** disease
- Multifactorial treatment
- **Dietary, pharmacological and surgery**
- Despite the many benefits associated with weight loss, the **success of dietetic treatment** is still being questioned
- Indeed, in the long run, professional and commercial programs are often considered **ineffective**



- ❖ Many factors can be influencing these results
- ❖ Research sometimes is not useful: (university studies)
- ❖ Studies in real life are necessary



1960s

- **Type of diet:**
- High in Proteins
- High in carbohydrates
- High in fat
- Etc.



Nutritional and health

Weight loss

No differences

-5,1 Kg

12 weeks

Ann Intern Med. 2010

***N Engl J Med.* 2009.**
(Harvard University)

Inter-individual variability



Nutrigenetics



stress



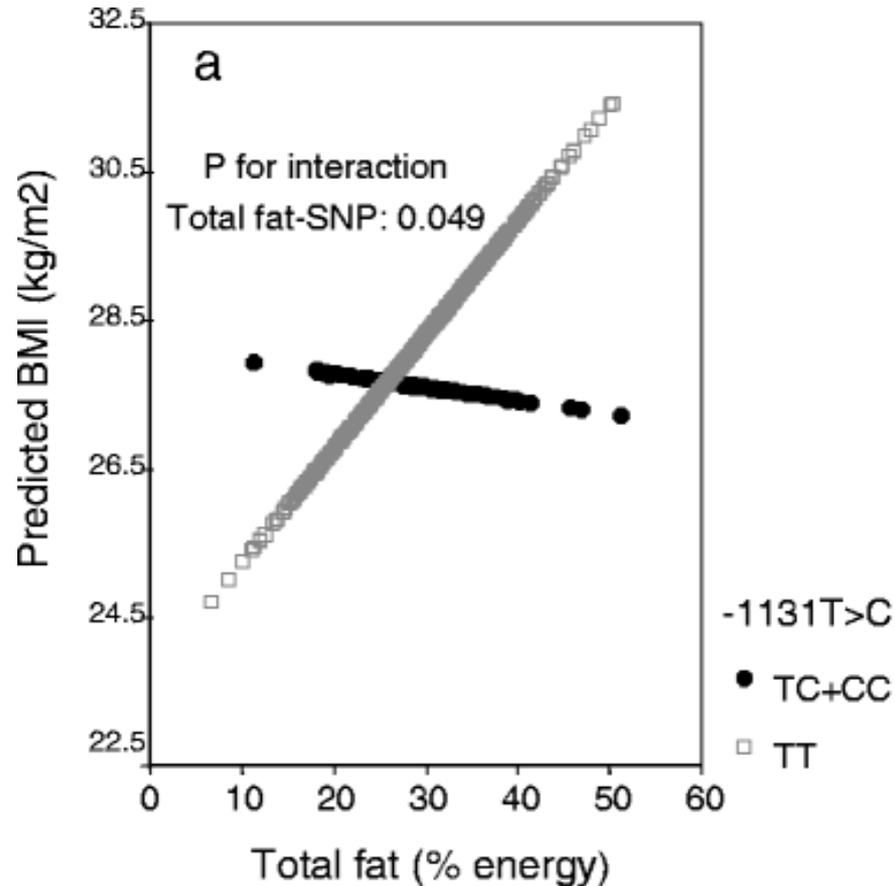
Alcohol



Diet



Physical activity

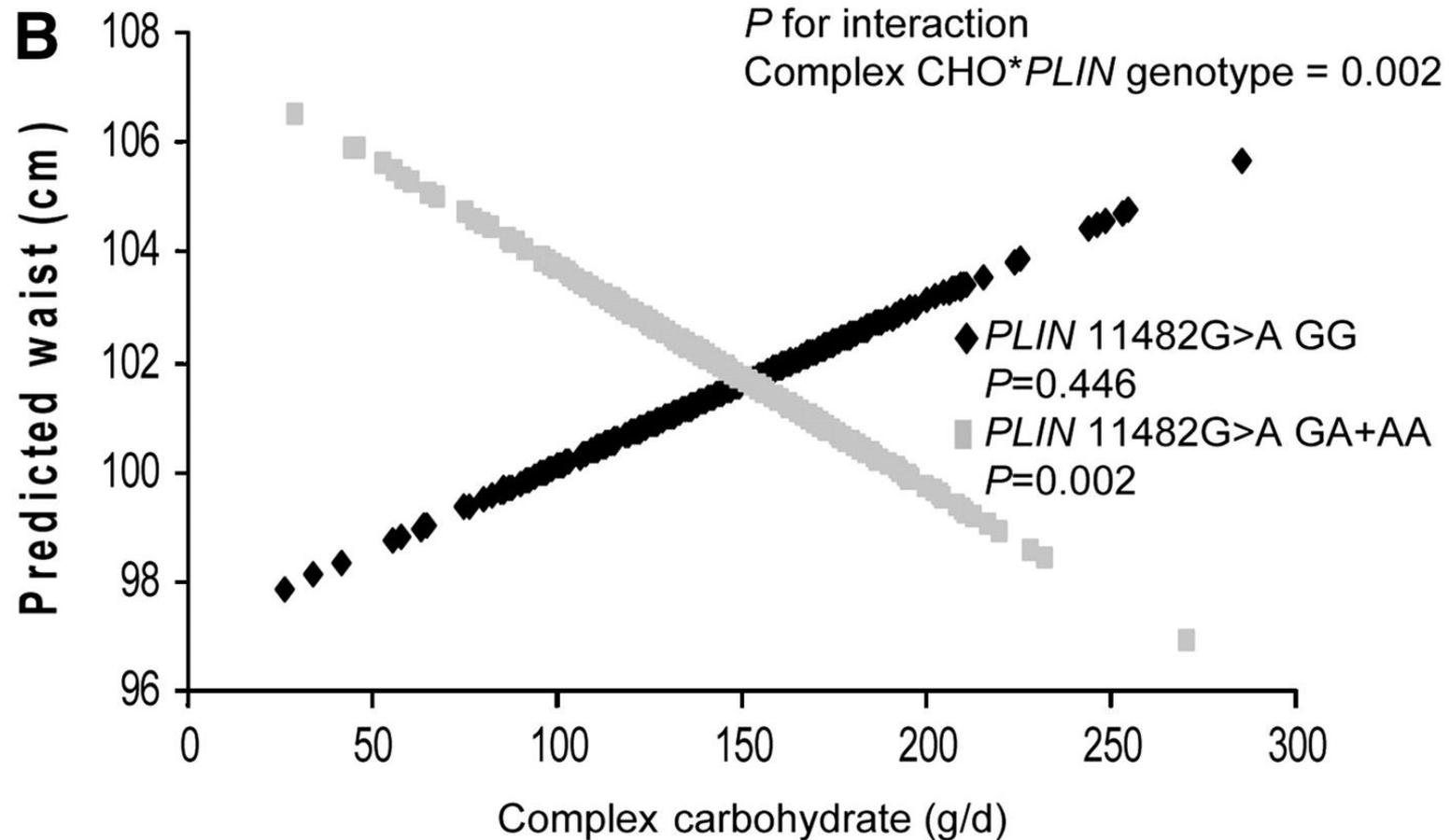


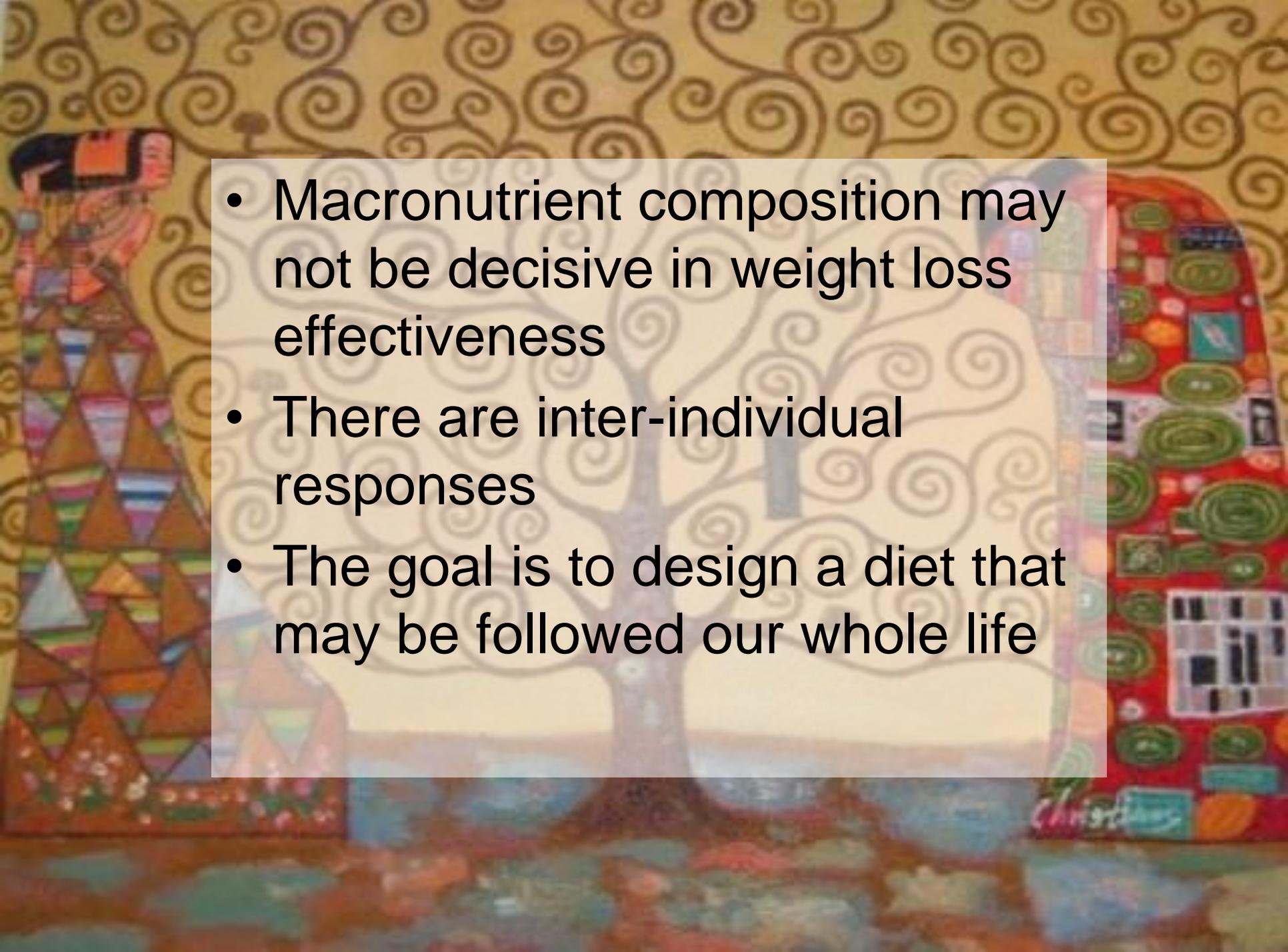
Garaulet M, et al., *Journal of Nutrition*, 2011

Major allele carriers TT increase obesity with fat intake. Surprisingly in minor allele carriers this relationship is not present.

Perilipinas Obesity and carbohydrates

Smith C, et al., J.Nutr.2008

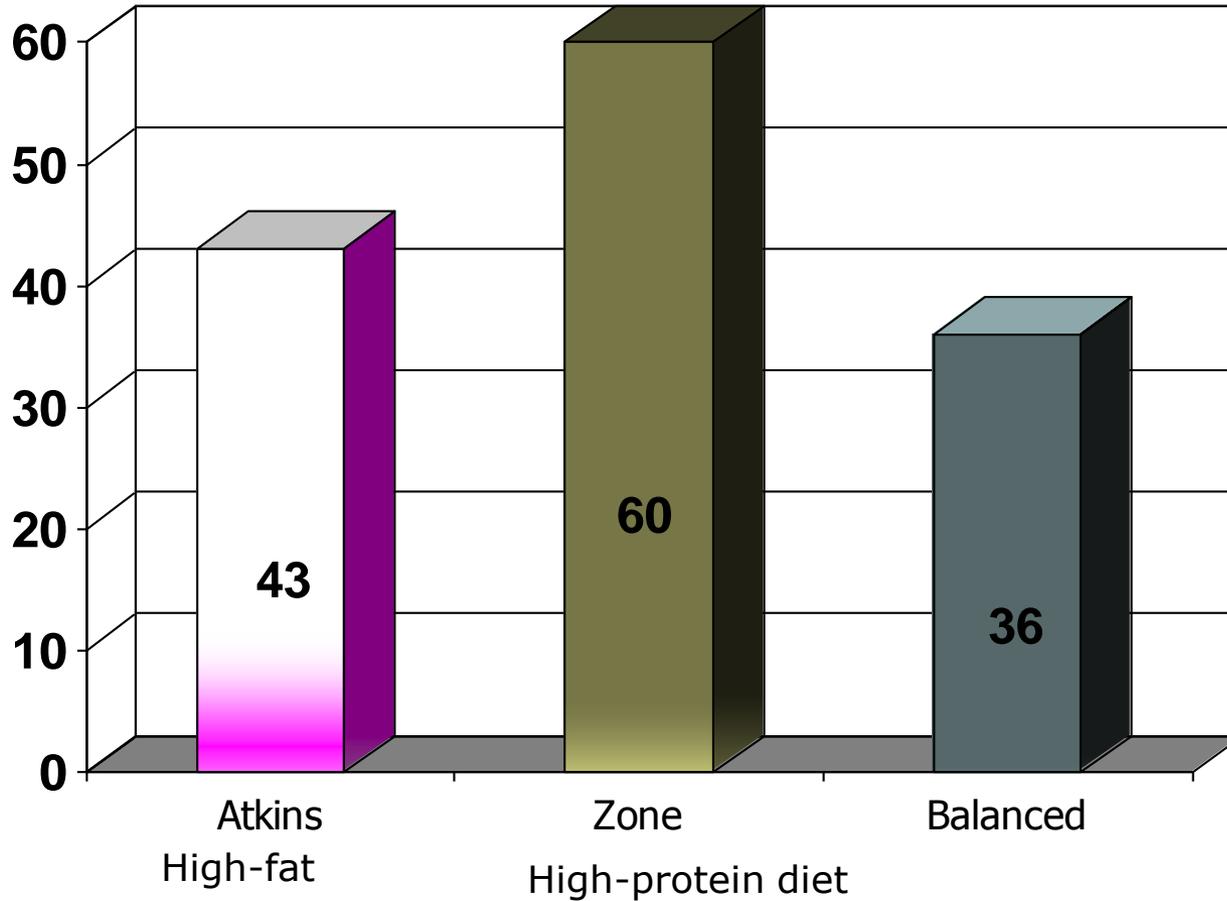


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- Macronutrient composition may not be decisive in weight loss effectiveness
 - There are inter-individual responses
 - The goal is to design a diet that may be followed our whole life

The best diet of the world is not useful if the patient doesn't follow it

(80% PATIENTS ABANDON)

Attrition (%)



High fat and high protein diets showed a higher rate of attrition

Specific hunger for carbohydrates



This is one of the reasons why after dieting some of us start to crave for sweets specially for chocolate to finish with this specific hunger.

serotonin and depression

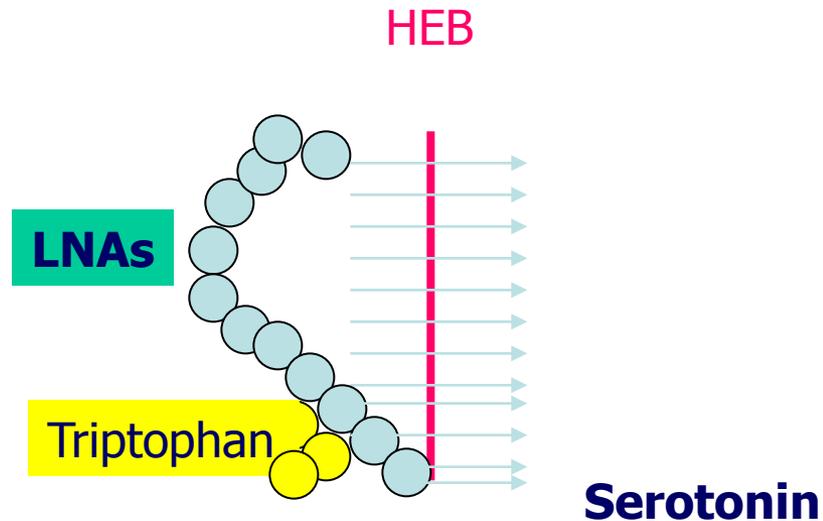


Central nervous system low levels of serotonin have been associated with:

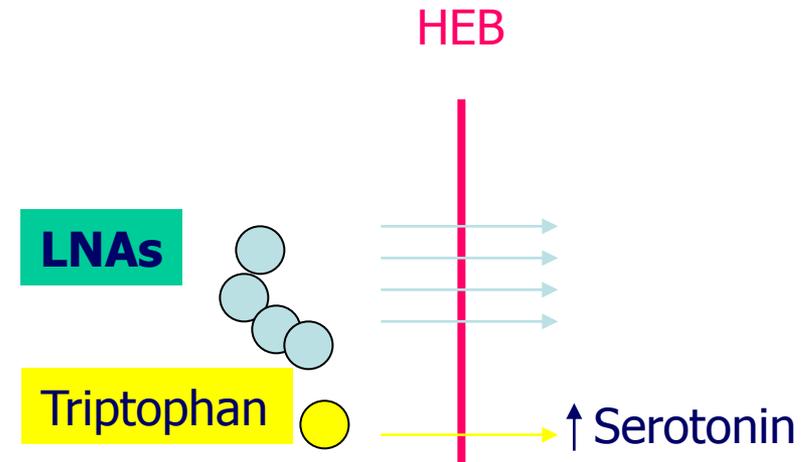
- 1) Depression,
- 2) Addiction
- 3) Obsessive-compulsive disorder,
- 4) Ingestion of carbohydrates, especially chocolate.

HIGH PROTEIN DIETS AND LOW LEVELS OF SEROTONIN

HIGH- PROTEIN DIET
3 X = (30% proteins)



BALANCED DIET
(10% proteins)



LNAs: Large Neutral Aminoacids; HEB: Hematoencephalic Barrier

Science. 1971. 174(13):1023-5.

Brain serotonin content: increase following ingestion of carbohydrate diet.

John D. Fernstrom and Richard J. Wurtman

Laboratory of Neuroendocrine Regulation,
Department of Nutrition and Food
Science, Massachusetts Institute of
Technology, Cambridge

In the rat, the injection of insulin or the consumption of **carbohydrate causes sequential increases in the concentrations of tryptophan in the plasma and the brain and of serotonin in the brain.**

Serotonin-containing neurons may thus participate in systems whereby the rat brain integrates information about the metabolic state in its relation to control of homeostatis and behavior.

Science 27 1972:178 (4059): 414 - 6

Brain Serotonin Content: Physiological Regulation by Plasma Neutral Amino Acids

John D. Fernstrom and Richard J. Wurtman

Laboratory of Neuroendocrine Regulation,
Department of Nutrition and Food Science,
Massachusetts Institute of Technology,
Cambridge

When plasma tryptophan is elevated by the injection of tryptophan or insulin, or by the consumption of carbohydrates, brain tryptophan and serotonin also rise;

However, when even larger elevations of plasma tryptophan are produced by the ingestion of protein-containing diets, brain tryptophan and serotonin do not change. **The main determinant of brain tryptophan and serotonin concentrations does not appear to be plasma tryptophan alone, but the ratio of this amino acid to other plasma neutral amino acids**



- Women, especially, are vulnerable to how carbohydrates affect their moods.

- **Women normally have one third less serotonin than men.** Diets that severely restrict carbohydrates will result in even lower serotonin levels.

- Women on high protein/very low carbohydrate diets are at greater risk for depression, seasonal affective disorder (SAD), carbohydrate crave/binge disorder and severe premenstrual syndrome.

The goal is to lose weight in ways that enhance health rather than in ways that may harm.

High-Fat diets: 4% Carbohydrates; 12-33% proteins; 63-84% fats

A wide body of scientific evidence links the consumption of animal protein, saturated fat, and cholesterol with CVD, cancer, and other chronic illnesses

70% of patients on an Atkins diet for 6 months were constipated, 65% had halitosis, 54% reported headaches, and 10% had hair loss

High-protein diets may cause loss of calcium and decreased levels of urinary citrate, leading to osteoporosis and kidney stones

Ketone bodies formed on a high-protein diet undergo urinary excretion to maintain electrical neutrality, resulting in the loss of cations such as calcium, magnesium, and potassium

An Atkins diet may increase postprandial lipemia and increase free fatty acids, which may have harmful effects on platelet aggregation and may promote ventricular arrhythmias

Adverse vascular effects not reflected in serum markers

References for previous page

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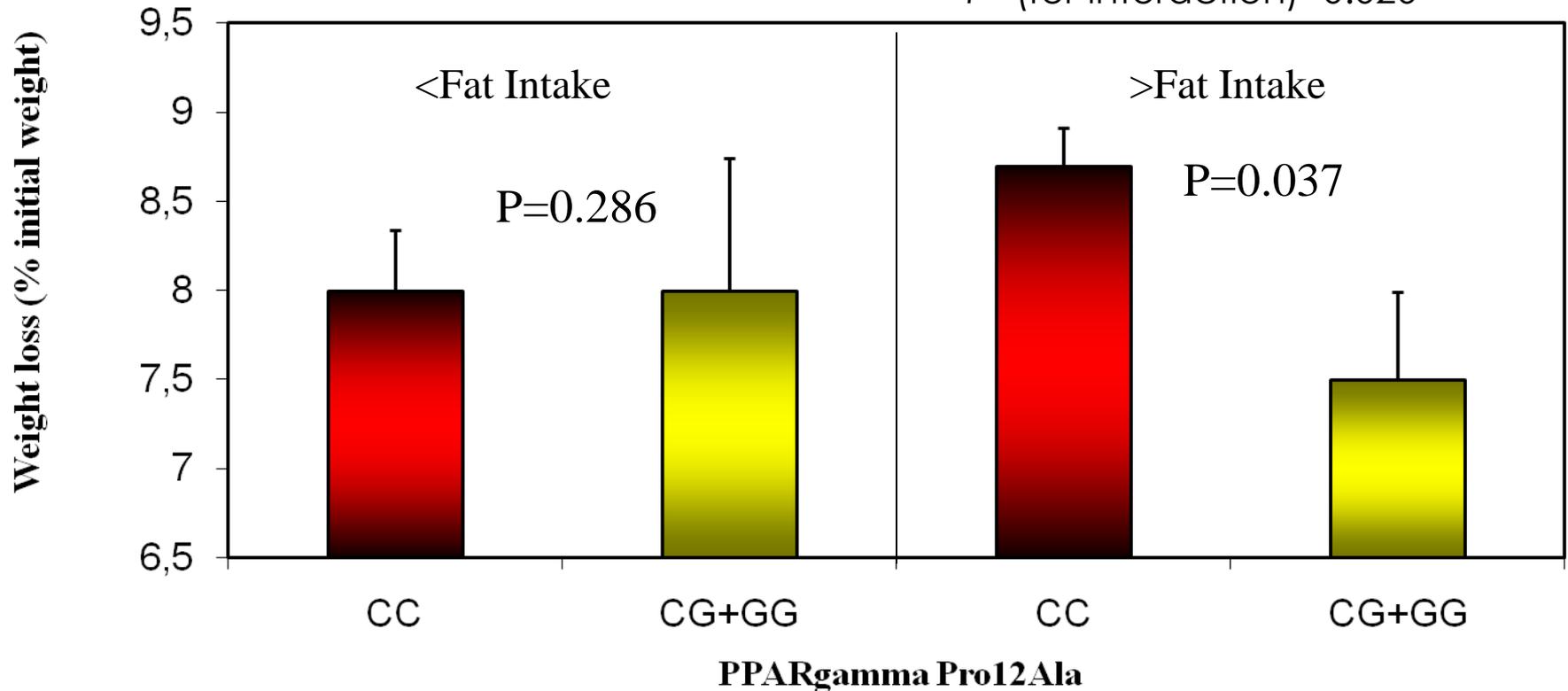
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Fat intake and genes

PPARgamma and Weight loss

P^* (for interaction)=0.020



Moreover, the deleterious effects of some genes are only present when the subjects have a high fat diet.

MEDITERRANEAN DIET: a good alternative



- New evidence points towards a possible role of the Mediterranean diet in **preventing** overweight/obesity
- Different Mediterranean-style diets have been shown as a safe strategy for the **treatment** of obesity
- A greater adherence to the Mediterranean diet has been associated with **a lower prevalence of abdominal** obesity
- Recently it has been proposed that the Mediterranean Diet is particularly effective on **glycemic control**

Cereals

Abundance of vegetables and fruit

Olive oil as the principal fat

Dairy products (cheese) in low to moderate amounts

Foods from animals in limited amounts (high consumption of fish)

Wine in moderation and with meals

50-55% Of the total calories of the diet come from carbohydrate



The mediterranean diet as a complex carbohydrate-rich diet



- Low glycemic index load
- Beneficial even for diabetics
- Half of the energy than fats
- They stimulate their own thermogenesis
- An important filling effect (increase satiety)
- Glucose is the main nutrient for cells
- Specific hunger for carbohydrates

Legumes, fiber content



- 1 banana: 2 g
- 1 kiwi: 9 g
- 1 slice of brown bread: 4 g
- 1 Orange: 3 g
- Lentils, beans and chickpeas: 15 g
- 1 salad, of lettuce, tomato and onion: 8g



Effects of a Plant-Based High-Carbohydrate/High-Fiber Diet Versus High-Monounsaturated Fat/Low-Carbohydrate Diet on Postprandial Lipids in Type 2 Diabetic Patients

Claudia De Natale, MD, PHD, Giovanni Annuzzi, MD, Lutgarda Bozzetto, MD, Raffaella Mazzarella, MD, Giuseppina Costabile, PHD, Ornella Ciano, RD, Gabriele Riccardi, MD and Angela A. Rivellese, MD

2009



The high-carbohydrate/high-fiber diet reduced the postprandial incremental areas under the curve of triglyceride-rich lipoproteins, in particular, chylomicrons .

Diet rich in carbohydrate and fiber, essentially based on legumes, vegetables, fruits, and whole cereals, may be particularly useful for treating diabetic patients because of its multiple effects on different cardiovascular risk factors, including postprandial lipids abnormalities.



•Garaulet Method

since 1993

Mediterranean

•Weekly distribution

Breakfast

Three groups of food

Main food

2 -3 day legumes

1-2 day pasta

1-2 day rice

***2 days vegetables as
main dish***

2 days meat or fish

Dinner

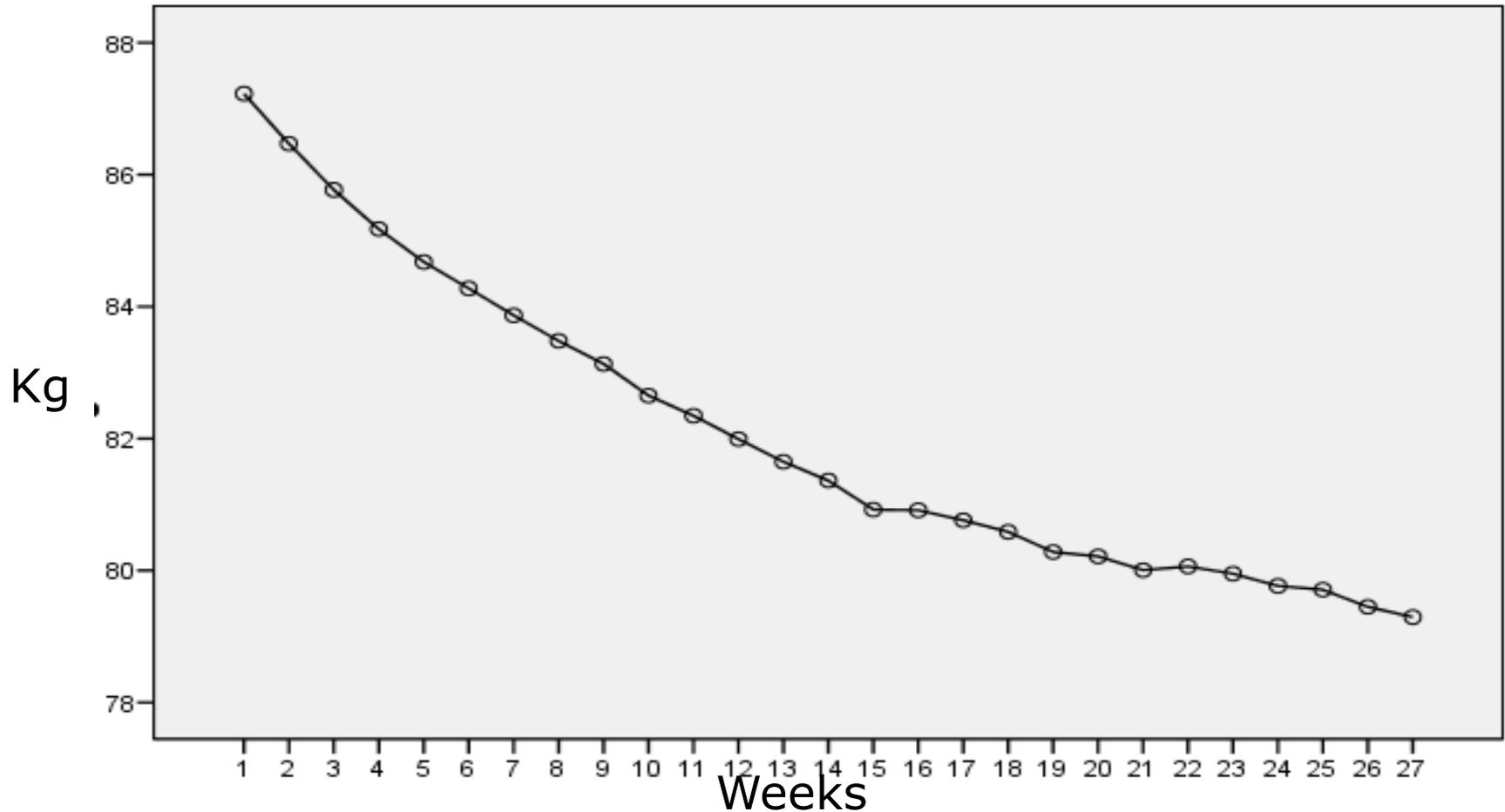
Rest to complete portions

***Olive oil as the unique fat
Vegetables free***

Garaulet et al., Nutr Hosp; 2009

Weekly weight loss

N= 1450

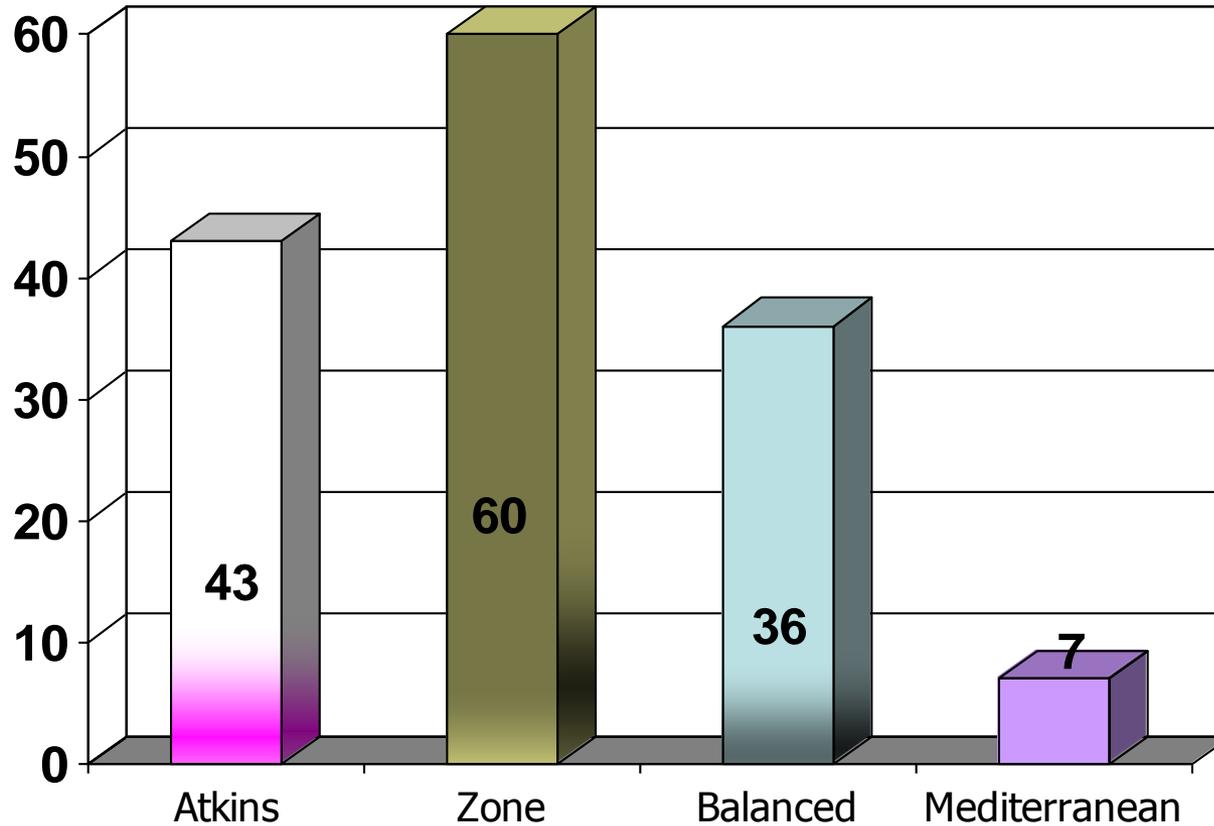


10% initial weight (9 kg) 650g per week

✓ Garaulet M et al., *Journal of Human Nutrition and Dietetics*, 1999,

✓ Corbalán-Tutau MD, Morales EM, Baraza JC, Canteras M, Garaulet M, *Nutrition*, 2009,

Attrition (%)

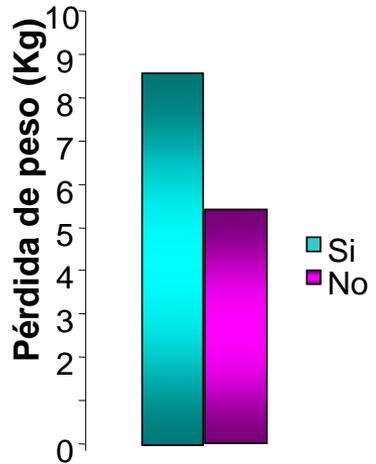


Corbalán-Tutau, et al (from Garaulet) 2009, Nutrition

The good results in adherence

- **Mediterranean style diet approach**
 - Subjects find this diet tastier than the low-fat regimens tried before.
 - Olive oil enhances the flavor of certain foods and may contribute to increase vegetable intake.
 - Pasta is also related to a higher intake of vegetables
 - increase of legumes such as lentils, beans and chick peas, improved the fiber intake, which increased satiety contributing to control of calorie intake
- Inclusion of elements from **behavioral therapy**

80-90%
Group assistance



Group Therapy



✓ Garulet M et al., Journal of Human Nutrition and Dietetics, 1999, II= 1,14





• Conclusions

- Macronutrient composition may be not important in total weight loss (kg)
- Inter-individual variability

However:

- High-fat diets have harmful effects
- Specific hungers (for CH)
- High attrition

Mediterranean diet +behavioral techniques has been demonstrated to be a good alternative for obesity treatment