



Mini Review

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# Can Caloric Restriction and Behavioral Determinants would be the Mainly Factors of the Weight Loss Process?

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## Introduction

Before mentioning calories, it is becomes very important to know that, besides calories, there are other weight loss determinants, that go beyond the numbers, the behavioral determinants has been demonstrated by a synthesized recent literature on weight loss determinants for individuals with overweight and obesity, that searched in PubMed and PsycINFO from 2006 to 2016 founding 124 important determinants to help these individuals lose weight, which 5 were demographic, 59 were behavioral, 51 were psychological/cognitive and 9 were social and physical environmental determinants [1]. That is, there are other things that influence the weight loss of individuals, although this work will approach Nutrition science, it is impossible to forget that weight loss is also influenced by these other determinants. The last study about determinants weight loss don't mentions what each determinant is, but a recent study with fourteen healthy adults can brings this subject about another way [2]. The authors randomly assigned to two groups—one experimental and one control, where all subjects exercised three times a week in prescribed workouts and followed an isocaloric diet, but the experimental group subjects were told that your food plan was low calorie. In the study results in average values, the experimental group lost 9.25 kg against 2.25 kg of the control group, this may be an idea of a possible placebo effect on the behavioral side of weight loss, since the individuals followed similar calories and did the same amounts of physical exercise. Perhaps, the experimental group, from what they were told, was more dedicated to dieting and training correctly, resulting in better results. Thus, there is a perspective that calories, along with behavioral determinants, become the most important marker during the decision-making process of individuals' weight loss.

Getting really into the calories subject, a study compared the time until twenty-seven overweight/obese participants lost 5 % of their body weight using more of 20 % caloric deficit in Intermittent Energy Restriction (IER) or Continuous Energy Restriction (CER)

[3]. This paper authors did not find any statistically significant difference in the time to attain this loss between groups, i.e., they took the same amount of time to lose 5 % of their weight even with different caloric distribution between these two diets. Alright, the distribution of calorie restriction doesn't seem to matter in the subjects' weight loss, but what about the amounts of carbohydrates during the day? Something like the term "nutrient time". Thinking about it, a study of response analyzes to a model of eating high carb was accomplished [4]. The researchers used a randomized, double-blind crossover model, with a 4-week wash-out, to test on the first half of the day (8 a.m. until 1:30 p.m.) a high carb diet versus a high fat in the late afternoon to evening (4 p.m. until 10 p.m.) using equal calories (~1800 kcal. day 1). At the conclusion of the study, they did not find significant differences in energy expenditure, carbohydrate, and fat oxidation of participants. Demonstrating that the hours distribution to feed or macronutrients amounts by day periods within diets with equivalent calories does not seem to influence greater or lesser losses in body weight, validating that calories seem to be more important in this process. Another subject commented on by scientists that would confuse the caloric issues on the weight loss would be the chronotypes. This way, a study compared the outcomes of a 3-week with the same 30% reduction in daily caloric intake undertaken by 131 individuals with obesity divided between 3-groups: morning ("lark"), evening ("owl"), and mixed chronotypes [5]. On the study conclusion, the authors declared after these weeks of calorie restriction, both groups experienced a similar loss of weight, may proving that the chronotype of individuals with obesity does not have a significant effect on the magnitude of the body weight loss when there is caloric restriction.

Approaching the issue of caloric amounts, an old study from 1997 treated two groups of obese individuals for six weeks with hypocaloric diets (~1100 kcal. day 1) [6]. However, the diets contained an average of 70 % carbohydrates in two ways, one with 57 g

of sugar (n=22) and another with 165 g of sugar (n=20). At the end of the six weeks of study, both groups lost weight significantly with no statistical differences between groups. Another study that evaluated carbohydrates difference at the weight loss was a systematic review and meta-analysis [7]. In it, the authors used the scientific research databases MEDLINE, EMBASE, and CENTRAL to search for studies on low carbohydrate diets and cardiovascular health. Was found 750 records in MEDLINE, 155 in CENTRAL and 1537 in EMBASE. Just 19 trials were included for reviews where the systematic review conclude a short-term weight loss regardless of low or balanced carbohydrate with little or no difference in weight loss and changes in cardiovascular risk factors for up to two years when randomized to low or balanced carbohydrates diets for weight loss.

Finally, another article, a model study from 1975, treated 106 “massive obese” (this is the term used by the study itself) with an “unmodified rice/reduction diet” that contained 400 to 800kcal. day<sup>-1</sup> and 90 to 95 % carbohydrates [8]. At the conclusion, the authors declared that average weight loss was 65kg (0.24kg. day<sup>-1</sup>) during 335 days for the men and 262 days for women.

In this way, the present work tries to explain that weight loss in general starts directly from caloric restriction in aid of behavioral determinants, and those other nutritional strategies such as intermittent diet, nutrient time, chronotypes and macronutrient adjustment, are indirect agents in this process as shown in the graphic summary in (Figure 1).



## Acknowledgements

None.

## Conflict of Interest

None.

## References

1. Varkevisser RDM, van Stralen MM, Kroeze W, Ket JCF, Steenhuis IHM (2019) Determinants of weight loss maintenance: a systematic review. *Obes Rev* 20(2):171-211.
2. Panayotov VS (2019) Studying the possible placebo effect of an imaginary low-calorie diet. *Front Psychiatry* 10:1-5.
3. Antoni R, Johnston KL, Collins AL, Robertson MD (2018) Intermittent v. continuous energy restriction: Differential effects on postprandial glucose and lipid metabolism following matched weight loss in overweight/obese participants. *Br J Nutr* 119(5): 507-516.
4. Kessler K, Hornemann S, Petzke KJ, Kemper M, Markova M, et al. (2018) Diurnal distribution of carbohydrates and fat affects substrate oxidation and adipokine secretion in humans. *Am J Clin Nutr* 108: 1209-1219.
5. Strojny Z, Rutkowski R, Kanikowska A, Zawada A, Juchacz A, et al. (2021) No Significant Effect of the Individual Chronotype on the Result of Moderate Calorie Restriction for Obesity — A Pilot Study. *Nutrients* 13(11): 4089.
6. Surwit RS, Feinglos MN, McCaskill CC, Clay SL, Babyak MA, et al. (1997) Metabolic and behavioral effects of a high-sucrose diet during weight loss. *Am J Clin Nutr* 65(4): 908-915.
7. Naude CE, Schoonees A, Senekal M, Young T, Garner P, et al. (2014) Low carbohydrate versus isoenergetic balanced diets for reducing weight and cardiovascular risk: A systematic review and meta-analysis. *PLoS One* 9(7): e100652.
8. Kempner W, Newborg BC, Peschel RL, Skyler JS (1975) Treatment of Massive Obesity with Rice/Reduction Diet Program: An Analysis of 106 Patients with at Least a 45-kg Weight Loss. *Arch Intern Med* 135(12):1575-1584.