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Caloric Restriction Challenges

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Abstract

Background: Meta-obesity is a problem of public health concern, especially obesity management. Although initial success rates are high for many diet types reaching 10% weight loss, there is a problem: the regaining weight after diet. There are a limited number of studies that measures the success of weight loss expressed by weight maintained for a long time after diet stopped.

Methods and findings: Only 20% of individuals who lost five or more kilos where able to keep their weight long enough after diet cessation, but most patients experience regaining their weight even to higher levels than starting point. If nutritional intervention programs are to be used as first line action in treating obesity, the body's adaptive responses to caloric restrictions must be very well known before making a plan of action and monitoring.

Conclusion: The human body will always trigger the starvation response to caloric deficits diets and if we want to be successful we have to find more suitable solutions to weight loss than lifestyle and nutritional intervention use now, by optimizing tools and methods in order to increase the rate of successful permanent weight loss.

Keywords: Diet; Obesity; Management; Caloric restriction

Introduction

Obesity is a global problem rising to pandemic proportions along with associated comorbidities. At present time there are few ways people can face the problems of obesity. Bariatric surgery has proven to be a reliable weight loss method but risk associated and high costs act as disincentive for many. There are pharmacological approaches to weight management but due to side effects and lack of efficacy not many patients/clients choose them. The most successful method so far is considered dieting and exercising for weight loss [1].

But there is a problem with this approach as well. Although initial success rates are high for many diet types reaching 10% weight loss, there is a problem, the weight cycles back [2]. There are limited number of studies that measured the success of weight loss by weight maintenance for a long time. The studies that do exist, painted a somewhat troubling picture [3].

Material and Methods

If the success of weight loss and lifestyle modification programs are to be measured by normal weight maintained for a period equal or greater than five years than these programs will loose their patients [3]. Only about 20% of individuals who lost five or more kilos where able to keep their weight long enough, most of patients regain their weight even at higher level than starting point. This kind of weight cycling can be even more harmful and taxing to the body than staying at their initial level [4]. Interesting, not all patients went back to their earlier lifestyle habits but the initial overweight came back nevertheless [3].

If nutritional intervention programs are to be used as first line action in treating obesity, the body's adaptive responses to caloric restrictions must be very well known before making a plan of action and monitoring [1].

Results and Findings

First and most notable adaptive response is so called "adaptive thermogenesis" when the body decreases its resting energy expenditure [REE] which is a basic starvation response caloric restriction. Patients who regained 50% of their lost weight returned to their baseline REE, they will keep gaining weight, indicating other adaptive responses [5].

Neuroendocrine adaptation response consists of a notable decrease in leptin levels, also in changes of other neuroendocrine hormones like ghrelin, cholecystokinin (CCK), peptide YY (PYY), insulin, pancreatic polypeptide (PP), glucagon-like peptide 1 (GLP-1), and uroguanylin will induce a distinctive increased appetite. Our concern is the fact that even once the patient regain their weight to that of prior to the weight-loss intervention, these neuroendocrine hormones don't return to their baseline levels thus prompting further overeating [6].

Gastrointestinal motility response adaptations are somewhat unclear nevertheless they exist and their results are based on an increase in nutrient intake and a decrease of fullness hormone or increased hunger [7].

Several studies suggested that for many patients some changes in apetite level occurs after weight loss, and these changes go beyond the simple increase of apetite, they affect all kinds of food products that patients crave for foods high in fat and sugar [8].

Although is somewhat disheartening the fact that around 80% of patients who gone through a lifestyle and nutritional intervention and had success, afterwards they regain their initial weight or even more within 5 years period, another study observed some patterns common among those who maintain their weight successfully.

The identified patterns where the following:

I. High levels of physical activity;

II. Diet low in simple carbohydrates and fat;

III. Regular breakfast;

IV. Constant monitoring of weight level;

V. Reset the emotional balance;

V. Identifying possible relapses before they occur [3].

Conclusion

The human body will always trigger the starvation response to caloric deficits diets. Until we find a more suitable solution to weight loss than lifestyle and nutritional intervention, specialists must optimize their tools and methods in order to increase the rate of successful permanent weight loss.

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