

Obesity and Weight Management: A 'Perpetuum Mobile' Story. Is There Something New?

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The epidemic of obesity and overweight has increased alarmingly, reaching figures that have doubled the last 20 years and currently affects approximately 50% of the population [1,2]. Obesity and overweight pose a high risk of cardiovascular disease and even death. In addition, it has been found that, increasing age, the relationship between obesity and mortality becomes much higher [3]. Therefore, the highest priority to find solutions based on the best scientific evidence must be given.

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Observational studies have shown that all-cause mortality increases progressively with adiposity when the normal weight range is exceeded, and this risk is especially high for cardiovascular mortality [4]. Any increase in body weight is associated with high mortality, but also with significant morbidity from cardiovascular diseases [5], high risk of developing some type of cancer, diabetes and depression [6], and poor or low cognitive function [7]. In this situation, only large-scale randomized and robust designed trials will provide the better quality evidence to conclusively determine the relationship between increased body weight and these morbidities.

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The World Health Organization, the National Institutes of Health from several countries, and even the American Dietetic Association have recommended that weight loss will be oriented towards the implementation of programs of active intervention on lifestyle of overweight or obese adults, including caloric restriction diets, physical activity personalized programs, and behavioural therapy.

The Look AHEAD trial [8], which brought together 5145 participants, analyzed the effect of a long-term program of weight loss and changes in lifestyle on cardiovascular diseases and mortality in obese adults, applying a low-fat diet (<30% of total energy intake to <10% of saturated fat). This study had to end abruptly in October 2012 due to its ineffectiveness in achieving the objectives [9].

In a completely opposite design, the PREDIMED trial [10], which gathered 7447 participants, was based on the beneficial effect that a traditional Mediterranean diet rich in fat had on reducing events in an adult population of high cardiovascular risk compared to a low-fat diet. The PREDIMED study showed that traditional Mediterranean diet supplemented with extra-virgin

olive oil or with nuts produced a 30% reduction in the occurrence of cardiovascular events after 5 years of intervention [11].

Although several scientific societies have recommended until recently that low-fat diets (those that provide less than 30% of energy from fat) is the most desirable way to promote health and body weight loss, the abrupt discontinuation Look AHEAD study, and the beneficial results of PREDIMED trial, have provided powerful arguments against the indiscriminate use of these low-fat diets.

Lately, it has been published a meta-analysis on the effects of the Mediterranean diet on the indicator variables of health status [12]. This study concludes that there is only limited evidence that the Mediterranean diet without fat restriction may reduce the incidence of cardiovascular events, breast cancer, and type 2 diabetes mellitus, without affecting mortality from any cause.

However, this analysis has several inconsistencies that show it as useless to provide appropriate information on the health effects of the Mediterranean diet, mainly derived from such a particular and unusual definition of the Mediterranean diet which authors apply, quite far from the commonly used and accepted by the scientific community worldwide [13-18]. The main importance of the Mediterranean diet is not based on its total fat contents, but the quality of it, with a large proportion of olive oil in the total fat [19,20].

In this sense, a cohort study investigated 83349 women from the Nurses' Health Study (1980-2012) and men 42884 Health Professionals Follow-up Study (1986-2012) and showed that a high intake of monounsaturated fatty acids and polyunsaturated was associated with low mortality [21]. Moreover, the Mediterranean diet is more than just a diet, because it represents a lifestyle that includes a particular dietary pattern, but also an active life, which is a key element to enjoy a healthy life.

Diets that recommend an intake of complex carbohydrates, a reduction in fat intake and a caloric restriction to produce weight loss are usually well accepted. However, there is no clear evidence that dietary fat is associated with an obvious increase in body weight [22-26]. Unlike low-fat diets, the traditional Mediterranean diet, full of vegetable unsaturated fats, fibre and antioxidants can be very useful to develop and implement programs to achieve and maintain weight loss, and to improve co-morbidities linked to overweight and obesity. Accordingly, some meta-analyses have shown small but significant effects of weight reduction and even its effect has been doubled when a low-energy Mediterranean diet has been applied [27], and even a 13% reduction in the risk of cardiovascular events for every 2 point increase on a scale (0-9) of adherence to the Mediterranean diet [28].

However, there is still insufficient experimental evidence to support the hypothesis that an intentional weight loss via a healthy diet and active lifestyle would be able to reduce weight, as well as mortality and co-morbidities associated with overweight and obesity. Specifically, the impact of weight loss on the risk of co-morbidities associated with overweight and obesity within the framework of the Mediterranean diet has not been adequately tested yet by a large-scale randomized clinical trial. Accordingly, a new trial, PREDIMED-PLUS, has started lately on more than 6000 participants in order to demonstrate that a multifaceted intervention program on lifestyle (hypocaloric Mediterranean diet + physical activity + behavioural intervention) can be more effective for weight loss and to reduce cardiovascular risk associated with overweight and obesity than a traditional Mediterranean diet without caloric restriction. The near future will show us if PREDIMED-PLUS has been an adequate approximation leading to long-term weight loss in adults who are overweight or obese, so that changes in lifestyle involving long-term benefits on health.

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