



## Metabolic Syndrome and Obesity Incidence for Low-Calorie Diet Patients

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### DESCRIPTION

Obesity incidence has increased in recent decades for a variety of reasons, but sedentary lifestyle and poor diet quality are thought to be the two main causes. Moreover, obesity raises the chance of developing a number of illnesses, including the metabolic syndrome, diabetes, Cardiovascular Disease (CVD), and cancer, as well as lowering one's quality of life. In contrast to exercise alone, modified dietary macronutrient consumption that results in a hypo caloric diet is helpful for weight loss over the short term and may be crucial for weight loss maintenance. Low-calorie diets not only help people lose weight but also enhance their quality of life, cardio metabolic health, and mental well-being. However, it has been suggested that adult weight-loss diets may have a negative impact on bone health.

Exercise has the potential to affect body weight and health over time through changing the energy balance. Despite the well acknowledged advantages of exercise, the rise in energy expenditure, and the potential to reduce appetite and energy intake, exercise alone does not appear to be successful at changing weight status. Controlled clinical trials have, however, produced a mixed bag of findings. While some studies revealed no additive effects of exercise, others discovered a larger effect of exercise for reducing several cardio metabolic risk factors in obese individuals. According to a number of research trials, while some participants showed less weight loss due to an increase in calorie consumption, others did exhibit a significant drop in body weight and energy intake during an exercise intervention.

Another systematic analysis that looked at the impact of either diet or exercise or both on excessive weight gain during pregnancy found that both diet and exercise alone or in combination appear to lower the risk of such weight increase. We are not aware of any systematic review aiming to compile the available data on other outcomes, such as bone health, sex hormones, liver and renal enzymes, quality of life, and depression, except from the aforementioned reviews. The first step in managing obesity is nutritional intervention. Today, various treatments have been developed to treat obesity, including

food intervention, exercise, medications, and surgery. The Calorie Restrict Diet (CRD), which the Chinese Nutrition Society advises, is a safe, practical, and nutritionally sound method for weight loss. Individual differences exist in the weight loss effect, but the precise process is still a mystery. Sleep deprivation can result in a number of physiological and psychological changes that can have negative effects on the body, including obesity, metabolic problems, and cognitive impairment. Moreover, Standard Deviation (SD) may have an impact on the variety of the gut bacteria, which may hinder weight loss. In order to better understand how SD affects weight loss and the variety of the gut microbiota in obese individuals on a Calorie-Restricted Diet (CRD), this study was conducted. Type 2 Diabetes Mellitus (T2DM), non-alcoholic fatty liver disease, and cardiovascular disease are just a few of the illnesses that obesity has been linked to as a risk factor for. As a result, obesity has been a problem for public health around the world that needs to be aggressively addressed. According to our study, various clinical indicators, such as WC, BW, SBP, DBP, BFC, BMR, HOMA-IR, TG, and ALT, significantly decreased following a 12-week CRD and exercise intervention. It implies that even in the presence of SD, CRD intervention can successfully lower the BW and BFC, enhance fat metabolism, and ameliorate insulin resistance.

Although this has been documented before, there were no prospective trials and the data came from obese T2DM individuals. All of the participants in our trial had been given the diagnosis of simple obesity, and the CRD programme had been developed prior to the study by a qualified nutritionist and sports manager. Also, after weight loss after a 12-week intervention, the prevalence of fatty liver disease decreased in both the Normal Spontaneous Delivery (NSD) group and the SD group. In the NSD group, 87.5% of participants had no fatty liver disease, which was considerably greater than in the SD group (37.5%). Thus, during the CRD intervention, SD may potentially hinder the treatment of fatty liver disease. Uncertainty surrounds the precise mechanism, though. There are numerous explanations that could apply,

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1. SD may cause irrational behaviour and poor adherence to the diet during the weight loss process;
2. Sleep deprivation may decrease leptin and increase ghrelin as well as hunger and appetite, which together result in a decrease in basal metabolic rate and an increase in intake, ultimately leading to obesity;
3. SD may alter gut microbiota compositions, which increases intestinal permeability and impairs the metabolism of nutrients like fat and sugar;

## CONCLUSION

Unfortunately our investigation had certain drawbacks; it was a single-center, prospective clinical trial with small sample size. Only 12 weeks of the CRD treatments were given out, which was a brief period. To validate our findings and examine the consequences of long-term CRD intervention in obese patients, which may offer a new method for the clinical management of obesity, more research with high sample sizes are therefore required.