



Recommended Diet Therapy of Mediterranean Diet (MD) and Low Carbohydrate Diet (LCD)

Hiroshi Bando^{1,2ID*}

¹Medical Research/Tokushima University, Tokushima, Japan

²Integrative Medicine Japan (IMJ), Shikoku Division, Tokushima, Japan

Corresponding Author: **Hiroshi Bando** [ORCID iD](#)

Address: Tokushima University /Medical Research, Nakashowa 1-61, Tokushima 770-0943, Japan;

Email: pianomed@bronze.ocn.ne.jp

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Abstract

To maintain health and achieve longevity, an adequate diet is crucial, such as the Mediterranean diet (MD) and the low-carbohydrate diet (LCD). The MD is characterized by whole grains, fruits, vegetables, less red meat, more fish, and four eggs per week. The MD may reduce the risk of heart disease, stroke, dementia, and depression. The LCD shows remarkable weight reduction in a short period, but there may be a probable rebound effect within six months. In Japanese cuisine, the intake of fermented soy foods such as natto and miso can lower the risk of death. As a recommendation, the LCD can be started first, followed by the MD for the long term.

Keywords

Mediterranean Diet, Low Carbohydrate Diet, Whole Grains, Japan LCD Promotion Association, Diabetes Remission Clinical Trial

Abbreviations

MD: Mediterranean Diet; LCD: Low Carbohydrate Diet; JLCDPA: Japan LCD Promotion Association; DiRECT: Diabetes Remission Clinical Trial

Editorial

Anti-aging medicine has become prevalent in healthcare and medical practice. To extend a healthy lifespan, food has been the foundation of our health, aligning with the well-known concept “food is medicine.” Regarding appropriate dietary content, the authors have continued practicing and researching the low-carbohydrate diet (LCD) in clinical settings. Furthermore, we have promoted the LCD from a social perspective through workshops organized by the Japan LCD Promotion Association (JLCDPA) [1]. Specifically, it is recommended to utilize three levels of LCD,

including super-, standard-, and petite-LCD methods [2]. Useful lifestyle and dietary guidance will be introduced in this article.

In recent years, the Mediterranean Diet (MD) has been considered beneficial for longevity. It is a dietary pattern loved since ancient times in Italy, Greece, and other countries. Its characteristics are summarized as follows:

- i) A diet centered on whole grains, fresh fruits, and vegetables,
- ii) Extensive use of nuts and olive oil in cooking [3],

- iii) Reduced consumption of red meat and increased consumption of fish,
- iv) Less than four eggs per week,
- v) Meals consumed without excessive wine intake,
- vi) Avoidance of processed foods whenever possible.

These are similar to the Italian course meal that features fish as the main dish. Whole grains include various types of “bran” that have not been removed during the refining process, such as brown rice, bread made from whole wheat flour, and buckwheat.

Historically, it has been known that people in Mediterranean countries and Crete, compared to those in the UK and the US, have fewer lifestyle-related diseases such as diabetes and hypertension and live longer [4]. Nutritionists have studied the MD and found the following results: a 30% reduction in the risk of heart disease, including myocardial infarction [5], and a reduced risk of stroke, dementia, and depression [6], along with a longer healthy lifespan [7] and a lower risk of diabetes [8]. The MD is expected to have a positive effect in many areas and is also considered effective for dieting. The Diabetes Remission Clinical Trial (DiRECT) compared the MD with the LCD and a low-fat diet [9]. Regarding the pace of weight reduction over the first 3-4 months, the MD was slower than the LCD. However, over two years, the MD had the same weight reduction effect. On the other hand, the LCD showed a tendency for weight rebound after about six months.

The MD is expected to be effective in both maintaining health and reducing weight. However, there are some challenges. Europeans are familiar with the MD from childhood, but Japanese people are not. For example, nuts are not often on the table, and Japanese people do not regularly eat seafood paella or pizza. It is not necessary to strictly follow the MD menu. In fact, the MD shares some common foods with Japanese cuisine. The recommended approach includes incorporating Mediterranean-style elements into Japanese food. The important points are summarized as follows:

- i) Use olive oil when cooking Japanese food,
- ii) Choose wine over beer as an alcoholic beverage,

- iii) Mix brown or germ rice to increase whole grain intake,
- iv) Reduce the salt content of miso soup and pickles,
- v) Use nuts instead of sweets as snacks to accompany alcohol.

For Japanese people unaccustomed to olive oil, rapeseed oil (canola oil) can be an alternative. Rapeseed oil contains a lot of oleic acid (monounsaturated fatty acid, MUFA), similar to olive oil, and can provide similar health benefits.

Fermented foods are essential to Japanese cuisine. A study of 92,915 Japanese people found that the intake of non-fermented soy foods (such as tofu) was not related to lifespan, but a high intake of fermented soy foods such as natto and miso was associated with a lower risk of death [10]. While miso soup has a high salt content, the health benefits of natto and miso can be significant. Thus, the MD can be customized to suit individual preferences, focusing on the positive aspects of Japanese cuisine and compensating for its shortcomings.

Regarding the LCD, four types can be applied for different clinical cases:

- i) The LCD was first proposed by Dr. Atkins in the 1970s, limiting carbohydrates to about 20g per day, primarily from dietary fiber.
- ii) A mild degree of carbohydrate restriction is maintained, with intake limited to about 20-40g per meal and 40-120g per day.
- iii) The ketogenic diet limits carbohydrate intake to 50g or less per day and derives more than 60% of total calories from fats. Ketone bodies, produced when fats are metabolized, are used as the energy source instead of carbohydrates.
- iv) The paleo diet is based on the concept of "returning to the Paleolithic diet centered on hunting." Grains, bread, and potatoes are avoided, while eggs, fish, fruits, and vegetables can be consumed in desired amounts.

The advantage of the LCD is its effectiveness in short-term weight reduction. In the DiRECT study, the average weight loss was 6 kg in a short period. Further analysis of obese cases following the LCD showed a

7 kg weight reduction, along with improvements in blood pressure and HbA1c levels [11]. However, studies have shown that people who replaced carbohydrate intake with poor-quality foods such as animal protein and fat had an increased mortality rate [12]. Another study found that the mortality rate increased for those consuming pork and beef and decreased for those consuming more vegetables and whole grains [13].

In summary, it is not a matter of choosing which diet is better, but rather recognizing that both have their benefits. Therefore, the effectiveness of diet therapy can be maximized by combining the two [14]. It is recommended to start with the LCD, followed by the MD for the long term.

Conflict of Interest

The author has read and approved the final version of the manuscript. The author has no conflicts of interest to declare.

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Commentary

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