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Proceeding Paper

Mediterranean-Style Japanese Diet for Anti-Ageing: Systematic Review †

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Abstract

This research compares the Mediterranean and Japanese diets and considers diet as associated with anti-ageing as well as leading a long and healthy life. Since Mediterranean countries, including Italy and Greece, have one-third the mortality ratio with respect to cardiovascular diseases compared to America and northern Europe, the Mediterranean diet is regarded as healthy. Here, the research shows the reasons why Mediterranean and Japanese diets have these properties. Both the Mediterranean and Japanese diets are typically low in fat, sugar, and calories, and are characterised by a high intake of vegetables, legumes, fish, and cereals. Differences include a greater consumption of polyphenol-rich extra virgin olive oil, dairy products, and a lower amount of meat consumption in the Mediterranean diet, as well as less use of fat; there is an abundant consumption of fermented foods and seaweed in the Japanese diet. Japan's globally leading long life expectancy is partly attributed to the cultural concept of "ME-BYO," which emphasises recognising and managing non-disease conditions before they develop into clinical illness. This tendency may be one of the reasons for the long lifespan of Japanese people.

Keywords: Mediterranean diet; Japanese diet; ME-BYO; phytochemicals; chronic inflammation; anti-ageing

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1. Introduction

The Mediterranean diet has been focused on as a health-beneficial diet since a survey was conducted in the United States in the 1950s. At that time, increasing numbers of people in America suffered from lifestyle-related diseases, and researchers on dietary intervention in the world noticed that the Mediterranean diet is a healthy choice [1–3].

According to the research, the death ratio from cardiovascular diseases in the Mediterranean region is less than one-third when compared to the U. S. and northern Europe. Therefore, the Mediterranean diet has been considered healthy and facilitates longevity [4,5].

On the other hand, the Japanese diet is also regarded as healthy because Japanese people have held the longest life expectancy record worldwide for over 20 years. In addition, Japanese people perceive that "medicine and food have the same root," meaning daily intake of well-balanced, delicious, and healthy meals prevents and cures illness. However, compared to the Mediterranean diet, the effectiveness of the Japanese diet for health has not been confirmed by scientific research yet, since only a few research studies were conducted [6,7]. Furthermore, shortly after World War II, Japan had a high incidence of stroke because of the high salt, low protein, and increased intake of high carbohydrates. It is unsurprising that Japan has recently become one of the leading countries in healthy longevity. Today, the Mediterranean diet has been listed as an intangible cultural heritage by UNESCO along with the Japanese diet.

This systematic review explores the similarities and differences between Mediterranean and Japanese diets, which are both considered healthy. Furthermore, this research indicates that the Mediterranean-styled Japanese diet is useful for healthy longevity and for resolving ME-BYO conditions.

2. Methods

This research follows the Cochrane guidelines and uses Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [8]. This systematic review conducted two separate analyses for Mediterranean and Japanese diets. (a) Search strings were "Mediterranean diet" and "Japanese diet", and these keywords were searched in "PubMed". (b) The time frame was "1 year" in the Mediterranean diet and "10 years" in the Japanese diet. (c) The selection process (screening, eligibility, and inclusion) of each diet is shown in the subsections below. (d) Tools for assessing study quality were not used in the systematic review.

2.1. Article Selection Process of the Mediterranean Diet

Regarding the Mediterranean diet, a PubMed keyword search of "Mediterranean diet" showed 10,866 articles. After limiting the publication period to the past "1 year", 1229 articles remained. Excluding papers without "abstracts" or "free full text" access reduced the number to 903. There were 259 articles with the article type "Review", and 51 articles in "Randomised Controlled Trial (RCT)". The sum of "Review" and "RCT" article types was 310. Since the systematic review displayed the top 10 "Best match" articles of "Review" and "RCT", a total of 20 articles were displayed, and the other 290 articles were excluded. (as of 2 of September 2025). The PRISMA flowchart of the systematic review for the Mediterranean diet is shown in Figure 1.

2.2. Article Selection Process of the Japanese Diet

As well as the Mediterranean diet, a PubMed keyword search of "Japanese diet" showed 309 articles. Since articles published regarding "Japanese diet" were not so many, the publication period was limited to the past "10 years" and 175 articles remained. There were 17 articles with the article type "Review", and 10 articles in "Clinical Trial" and/or "Randomised Controlled Trial (RCT)". The sum of "Review" and "Clinical Trial" and/or "RCT" article types was 27. Since the systematic review displayed the top 10 "Best match" articles of "Review" and "Clinical Trial" and/or "RCT", a total 20 articles were displayed, and other 7 articles were excluded. (as of 2 of September 2025).

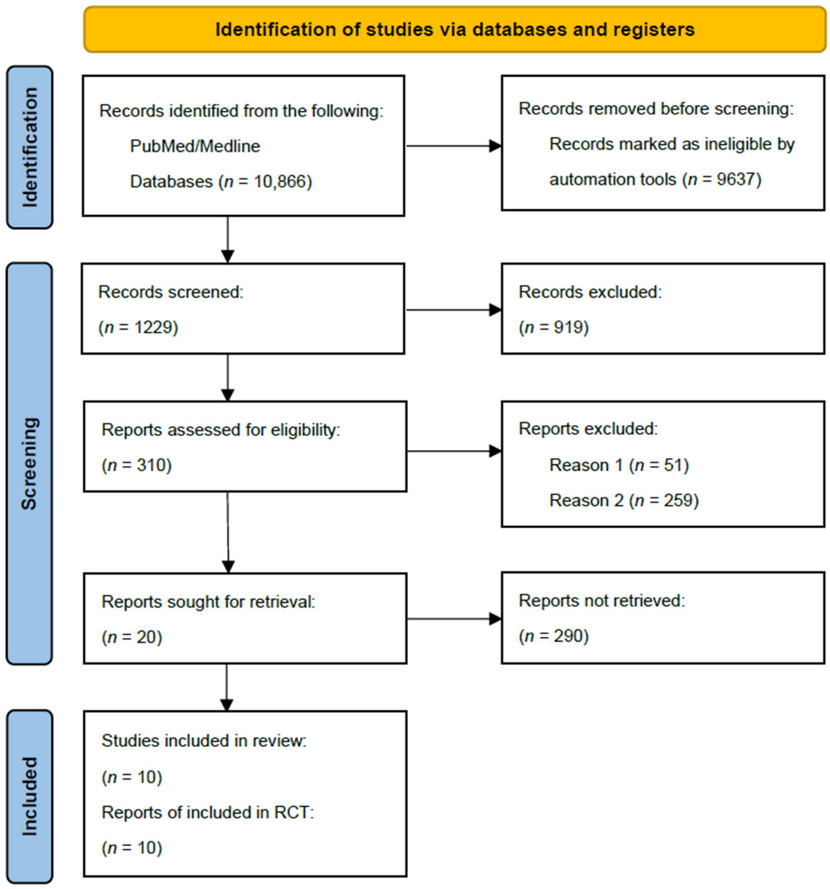

Figure 1. PRISMA flowchart of the systematic review: the Mediterranean diet.

3. Results

3.1. Summary of Scientific Evidence Regarding the Mediterranean Diet

3.1.1. Mediterranean Diet-Associated "Review Articles" Within 1 Year (Top 10)

As shown in the flowchart above, a PubMed search with the keyword "Mediterranean diet" yielded 10,866 articles. There were 259 "Review" articles within 1 year, and the top 10 articles shown in the filter "Best match" with appropriate data are summarised in Table 1 [9–18].

Table 1. Mediterranean diet associated "review articles" within 1 year (Best match: top 10).

Main Findings and Markers	First Author, Publication Date, Ref.
Adherence to Mediterranean diet (rich in antioxidants and anti-inflammatory compounds and omega-3 fatty acids) improves pain, function, and QOL of osteoarthritis patients	Veronese N, 2024, [9]
Influence of Mediterranean diet on spirituality and religion	Dominguez LJ, 2024, [10]
Prevention of neurodegenerative disorders by consumption of Mediterranean diet (rich in antioxidants, vitamins, and polyphenols; characterised by healthy, plant-based foods, fats, and moderate consumption of animal products)	Picone P, 2024, [11]
Effects of Mediterranean diet on cognitive impairment, dementia, and Alzheimer's disease; meta-analysis	Fekete M, 2024, [12]
Intervention with prebiotics and Mediterranean diet improves gut microbiota composition of *Firmicutes*, *Bacteroidetes*, and *Bifidobacteria* in patients with pre-diabetes or T2DM	Dimba NR, 2024, [13]

Table 1. *Cont.*

Main Findings and Markers	First Author, Publication Date, Ref.
Improvement of sexual function with Mediterranean diet: both men and women	Oteri V, 2024, [14]
Reduction in mortality and cardiovascular risks by Mediterranean diet in older adults: meta-analysis including 28 research articles	Furbatto M, 2024, [15]
Beneficial association between duration and/or quality of sleep and diets by Mediterranean diet, DASH diet, and MIND diet	Różańska D, 2024, [16]
Significant relationship was observed between Mediterranean diet and QOL in adults: systematic review of 28 research articles	Godos J, 2025, [17]
Mediterranean diet (consuming fruits, vegetables, olive oil, whole grains, legumes, and nuts every day) reduces risk of chronic inflammation-associated diseases, including IBD	Deleu S, 2024, [18]

3.1.2. Mediterranean Diet-Associated "Randomised Clinical Trials" in Past 1 Year (Top 10)

As well as review articles, there were 51 "randomised clinical trials (RCT)" within 1 year, and the top 10 articles shown in the filter "Best match" with appropriate data were summarised in Table 2 [19–28].

Table 2. Mediterranean diet-associated "randomised clinical trials (RCT)" in past 1 year (Best match: top 10).

First Author, Publication Date, Ref.	Treatment and Subjects	Outcome
Hernando-Redondo J, 2024, [19]	Randomised dietary intervention of MedDiet—EVOO (high extra virgin olive oil), MedDiet—nuts, and low-fat diet groups (*n* = 134): 12 months, blood nuclear cells	Mediterranean diet modulates neuroinflammation-related genes in elderly adults at high cardiovascular risk
Rusch C, 2024, [20]	Mediterranean diet (*n* = 19) vs. standard of care (*n* = 17): 8 weeks, in Parkinson's disease patients with constipation	Both Mediterranean diet and standard of care improve constipation, while Mediterranean diet increases dietary fibre intakes and reduces intestinal inflammation
Laganà M, 2025, [21]	Mediterranean diet (*n* = 15) vs. gluten-free diet (*n* = 15) vs. free diet (*n* = 15): 12 weeks, in euthyroid HT patients	Mediterranean diet significantly lowers AGEs and raises GPX, TRX, and TEAA, while gluten-free diet does not significantly influence these factors
Cabrera-Suárez BM, 2024, [22]	Extra virgin olive oil-enriched Mediterranean diet (*n* = 103) vs. control (*n* = 93): 2 years, in patients with depression	Mediterranean diet reduced the depressive subsyndromal symptoms
Boughanem H, 2025, [23]	Intervention with Mediterranean diet or low-fat diet in 7 years: participants were divided into 3 groups based on tertiles of neutrophil count: the lowest tertile (*n* = 346), the middle tertile (*n* = 322), and the highest tertile (*n* = 334), in patients with coronary heart disease (CHD)	Mediterranean diet reduced the neutrophil count and delayed progression of atherosclerosis
Vázquez-Lorente H, 2025, [24]	Intervention (*n* = 462) vs. control (*n* = 462): 3 years, in age-related bone deterioration risk	Intervention of Mediterranean diet with increased physical activity reduced the bodyweight and increased bone mineral density (BMD) in older women
Hernando-Redondo J, 2025, [25]	MedDiet—EVOO (*n* = 54) vs. MedDiet—nuts (*n* = 46) vs. control (*n* = 51): 12 months, high CVD risk patients	Mediterranean diet increased the gene expression of cholesterol efflux receptors and improved CVD conditions

Table 2. *Cont.*

First Author, Publication Date, Ref.	Treatment and Subjects	Outcome
Nakaki A, 2024, [26]	Mediterranean diet (n = 407) vs. stress reduction (n = 407) vs. control (n = 407): at 19- to 23-week gestation	Mediterranean diet and stress reduction during pregnancy reduces lowered proportion of small placentas and is beneficial for foetal growth
Kasti AN, 2025, [27]	Mediterranean low-FODMAP (fermentable oligosaccharides, disaccharides, monosaccharides, and polyols) diet (n = 48) vs. NICE recommended diet (n = 44): 6 months, in non-constipated IBS patients	MED-LFD is superior to NICE recommendations in managing non-constipation IBS symptoms and quality of life
Chávez-Alfaro L, 2025, [28]	Non-red/-processed meat Mediterranean diet (n = 78) vs. control (n = 78): 8 weeks, in adults with dyslipidemia	When red/processed meat is eliminated (low saturated fat), Mediterranean diet improves dyslipidemia

3.2. Summary of Scientific Evidence Regarding the Japanese Diet

3.2.1. Japanese Diet-Associated "Review Articles" in Past 10 Years (Top 10)

As well as the Mediterranean diet, a PubMed search with the keyword "Japanese diet" yielded 309 articles. There were 17 "Review" articles within 1 year, and the top 10 articles shown in the filter "Best match" with appropriate data are summarised in Table 3 [29–38]. With even fewer articles than the Mediterranean diet, an increasing number of articles have reported the health benefits of the Japanese diet.

Table 3. Japanese diet-associated "review articles" in past 10 years (Best match: top 10).

Main Findings and Markers	First Author, Publication Date, Ref.
Cohort study in Osaki, Miyagi: Decreasesd disability, and dementia with Japanese diet	Matsuyama S, 2022, [29]
Decreasesd CVD death with high dietary fibres and plant-proteins: Increased CVD with high salt intake	Shirota M, 2022, [30]
Japanese diet mainly consists of dietary staples, side dishes, and soup, and the components were categorised into 16 groups	Suzuki N, 2018, [31]
Indo-Mediterranean diet and Japanese diet diversify food variety and are rich in antioxidants	Singh RB, 2022, [32]
Comparison of Mediterranean, vegetarian, ketogenic, and Japanese diets in cardiovascular health: recommendations of vegetables, fruits, whole grains and legumes	Migliaccio S, 2020, [33]
Mediterranean and Japanese diets consist of large amounts of polyphenols but small amounts of aging-accelerating processed foods, sugar, and fats	Fiore M, 2025, [34]
High blood pressure↓, Metabolic syndrome↓, by soybeans, whole rice, vegetables, fish oil, and taurine in Japanese diet	Singh RB, 2022, [35]
Chronic malnutrition and excess calorie intake influence the risk of cancer	Gray A, 2020, [36]
Low obesity ratio and decrease in high-salt foods are correlated with the low ischemic heart disease and cancer death	Tsugane S, 2021, [37]
Seafood-rich Japanese diet can provide high iodine and selenium	Dijck-Brouwer DAJ, 2022, [38]

3.2.2. Japanese Diet-Associated "Randomised Clinical Trials (RCT)" and/or "Clinical Trials" in Past 10 Years (Top 10)

In addition to review articles, 10 articles filtered with "Clinical Trial" and/or "RCT" in "Japanese diet" are summarised in Table 4 [39–48].

Table 4. Japanese diet associated "Clinical Trian" and/or "randomised clinical trials (RCT)" in past 10 years (Best match top 10).

First Author, Publication Date, Ref.	Treatment and Subjects	Outcome
Kushida M, 2019, [39]	1975-type Japanese diet (n = 11) vs. 2005-type modern diet (n = 10): 3 times a day; 28 days, age 20–29	1975-type Japanese diet is related to healthy gut microbiota
Sugawara S, 2018, [40]	1975-type Japanese diet (n = 16) vs. 2005-type modern diet (n = 16): 3 times a day; 28 days, age 20–29	1975-type Japanese diet is beneficial for body fat parameters
Asano M, 2019, [41]	1975-type Japanese diet (n = 30) vs. 2005-type modern diet (n = 30): 3 times a day; 28 days, obese people	1975-type Japanese diet reduces metabolic syndrome risk
Koga M, 2020, [42]	Rice vs. cereal consumption: 3 times a day; 2 months, volunteer (n = 62)	Rice-centred meals improve quality of sleep
Sawada R, 2019, [43]	Reaction time to pictures of high-fat foods (fast food), low-fat foods (Japanese diet) or non-food items (kitchenware), subjects number ND	Hungry subjects prefer fattier foods
Maruyama C, 2021, [44]	Japanese diet (n = 49) vs. Partial Japanese diet (n = 49): Japanese diet contains more fish, soy products, vegetables, seaweeds/mushrooms/konnyaku and unrefined grain: 3–6 months	Nutritional education with improved hyperlipidemia
Sakane N, 2019, [45]	Smart Japanese diet vs. control: 2 weeks for improvement of metabolism (n = 21), overweight/obese men without diabetes	Smart Japanese diet improves visceral fat area in overweight/obese men
Fan R, 2016, [46]	Healthy, monotonous, vegetarian, Japanese, and low energy vs. traditional diets groups: 1-month dietary intervention in China (n = 299), age over 50	Nutrition education and dietary intervention are effective in diabetes patients
Yoshinaga K, 2019, [47]	Rice 200 g vs. rice 200 g + dried wakame 4 g: cross-over method, (n = 26)	Water-soluble fibres in wakame lowered blood sugar spikes
Mano F, 2018, [48]	White rice vs. white bread, with 21 cooked side-dishes: two 1-week test periods with a 1-week wash-out period (n = 7), healthy subject	Digestion-resistant carbohydrates are good for gut microbiota

4. Discussion

Figure 2 shows the Mediterranean-style Japanese diet pyramid. Characteristic features of the Mediterranean and Japanese diets are the high consumption of plant-based foods such as vegetables, legumes, and grains, as well as seafood [31]. The Mediterranean diet extensively uses extra virgin olive oil and dairy products, but consumes a limited amount of red meat. On the other hand, the Japanese diet avoids using animal fats by making better use of "umami" (e.g., glutamic acid), which is rich in fermented foods, consuming lots of seaweeds, and is low in calories, and incorporates fresh, seasonal ingredients. Until the middle of the 19th century, Japanese people rarely ate meat. Saturated fatty acids found in red meat increase LDL and triglycerides, induce insulin resistance, and cause the onset of cardiovascular diseases. Therefore, excessive consumption of red meat is not recommended [49]. Instead, legumes are high in protein and low in fat. Fermented foods such as natto, soy sauce, miso, pickles, and bonito flakes are the components of a healthy Japanese diet. In addition, the consumption of yoghurt and cheese, common in the Mediterranean diet, is increasing in Japan. The Mediterranean diet has been an attractive dietary choice because this diet reduces the mortality rate from cardiovascular diseases. The interest in a healthy diet with large consumption of vegetables and fruits is increasing worldwide. For example, the Five-a-Day campaign in the U. S. encourages people to consume 400 g of five different types of vegetables per day [50], and interest in vegetarianism is also increasing.

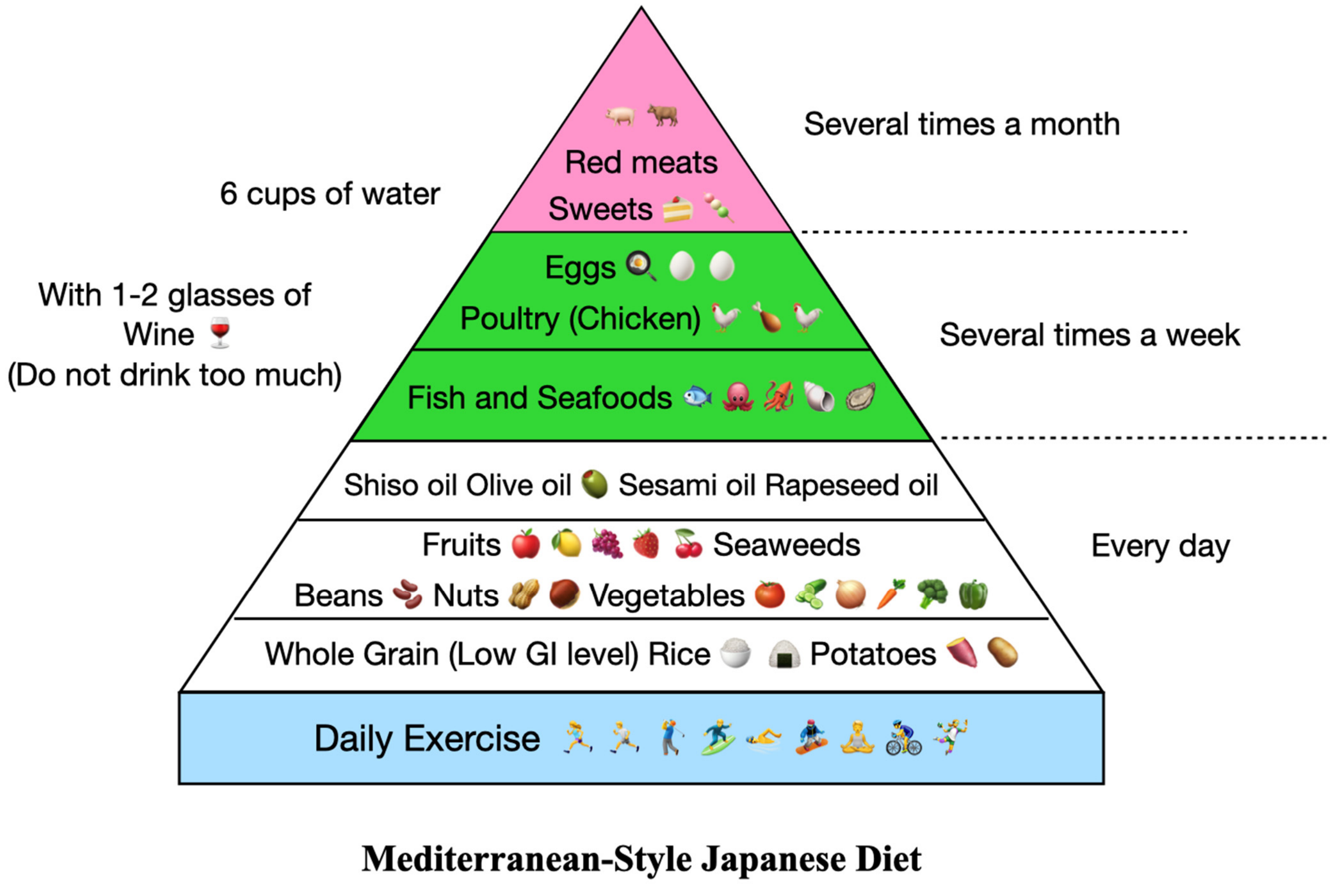

Figure 2. Mediterranean-style Japanese diet pyramid: A diet that prevents ME-BYO (non-disease condition) and is more suited to a healthy, long life.

The randomised clinical trials (RCTs) of the Mediterranean diet and the clinical trial or RCT of the Japanese diet revealed the benefit of these dietary regimes. The Mediterranean diet indicated the improvement of the symptoms of metabolic disorders such as neurodegenerative diseases [19], enteritis [20], depression [22], atherosclerosis [23], and metabolic syndrome [24]. The improvement of dyslipidemia by the red and processed meat-excluded Mediterranean diet has also been reported [28]. As well as the Mediterranean diet, the Japanese diet also improves the symptoms of metabolic disorders [40,41,44,45]. In addition, a report indicated the improvement of gut microbiota conditions [39], and the other report showed the benefit of the consumption of water-soluble dietary fibres in seaweeds [47]. Furthermore, there was an article that improves the quality of sleep by the consumption of white rice, which is the staple of the Japanese diet [42]. Since both the Mediterranean and Japanese diets are typically low in fat, sugar, and calories, and are characterised by a high intake of vegetables, legumes, fish, and cereals, it is biologically plausible to improve the metabolic disorders. Usually, the risk of metabolic disorders is increased by the consumption of a typical Western diet with high fat and sugar content and high calories.

Recently, attention has been focused on phytochemicals [51]. These are found in a variety of vegetables and fruits, including onions, oranges, green tea, soybeans, and grapes, which are particularly rich in polyphenols. Fermented grape foods from Koshu, a Japanese grape strain (K-FGF), consisting of the grape skin and seed paste of *Vitis vinifera* Koshu, were fermented with plant lactic acid bacteria. K-FGF contains a large amount of quercetin and suppresses disorders related to chronic inflammation through the suppression of TNF-α [52]. The anti-inflammatory properties of phytochemicals reduce the risk of lifestyle-related diseases such as diabetes, cardiovascular disease, liver disease, dementia, Alzheimer's disease, pulmonary diseases and dysbiosis-associated intestinal diseases [53]. They are also expected to suppress sepsis, which is more likely to manifest in a chronic inflammatory condition [54].

Prebiotics, probiotics, phytochemicals, and vitamin D are referred to as the 3PDs. Recently, the importance of vitamin D has been re-evaluated: it affects butyrate-producing bacteria to help upregulate immune responses by the activation of regulatory T cells (Tregs) and enhances antimicrobial peptides to improve the gut microbiome [55]. The gut microbiota has a characteristic feature of obese and lean individuals. Individuals with obesity tend to have *Firmicutes*-dominant and lean individuals tend to have *Bacteroidetes*-dominant gut microbiota. A lower F/B ratio is considered healthy. Good gut microbiota is raised on a diet rich in Microbiota-accessible carbohydrates (MAC) [56], and seaweed, a common component of the Japanese diet, and rich in high-quality water-soluble dietary fibre.

Japanese people tend to have meals approximately 80% full and avoid overeating. The calorie restriction activates the sirtuin genes that keep cells younger [57] and suppress dementia, fatty liver, cardiovascular disease, and other conditions [58].

Ironically, a limitation of the study is that the adaptation of Western-style lifestyles in Japan diminishes these healthy dietary practices. A typical example is in Okinawa. Okinawans once ate a healthy diet that mainly consisted of vegetables, with a little fish and occasional consumption of meat, such as pork. The lifestyle led to a very low incidence of diseases and a high number of centenarians, making the Okinawan lifestyle a global phenomenon [59]. However, the dietary habits of younger generations in Okinawa have rapidly Americanised, leading to health problems such as increasing obesity, like those of the average Americans, and efforts to correct these issues are needed [60]. Meanwhile, other dietary approaches incorporating the benefits of the Mediterranean diet, such as the Dietary Approaches to Stop Hypertension (DASH) diet and the Mediterranean–DASH Intervention for Neurodegenerative Delay (MIND) diet, have become increasingly popular in the U. S. and other places [61].

The idea of "Medicine and Food have the Same Root" is deeply rooted in Japan, where eating a nutritionally balanced diet every day prevents and cures a variety of diseases. Furthermore, traditional Japanese medicine (Kampo) includes the concept of "Yakuzen", eating a diet tailored to symptoms and the body's condition [62]. This demonstrates how important "what we eat" is to maintaining a healthy condition. The idea of finding and treating "ME-BYO" (non-disease condition) is widely spread in Japan (Figure 3). Eating a daily balanced diet helps prevent "ME-BYO" and maintains good health, making it important for a healthy, long life. The Mediterranean-style Japanese diet is effective for the anti-ageing effects and is also recommended for the prevention of "ME-BYO".

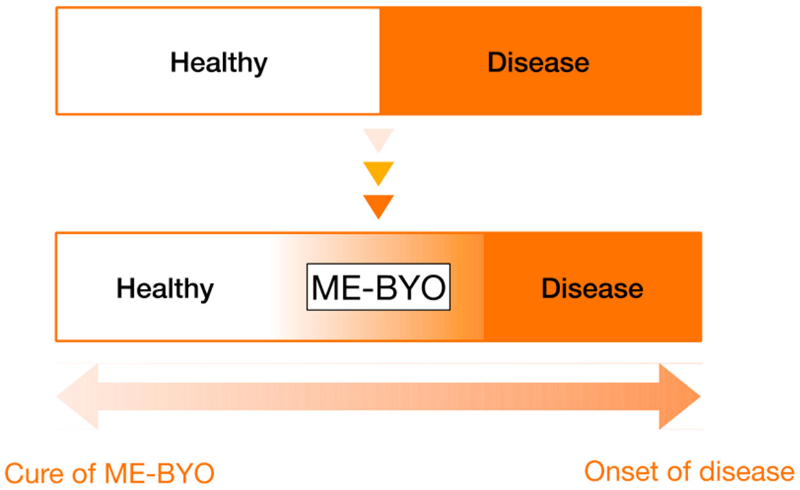

Figure 3. Schematic view of ME-BYO. We cannot distinguish between a healthy state and a diseased state. ME-BYO (non-disease state) is the state that continuously changes from a healthy state to a diseased one. Generally, ME-BYO is a state in which there are no subjective symptoms but abnormalities in examinations, or a state in which there are subjective symptoms, but no abnormalities in examinations. The importance of ME-BYO has been increasing because the prevention of ME-BYO in the younger generation will reduce medical expenses and prolong healthy longevity.

5. Conclusions

In conclusion, the Mediterranean-style Japanese diet, a well-balanced diet, reduces the risk of a variety of diseases by preventing the onset of chronic inflammation. In recent years, there has been increasing evidence that the benefits of the Mediterranean and Japanese diets have been lost because of the westernisation of diets. On the other hand, however, with the increasing consciousness of healthy lifestyles, the number of new dietary methods that incorporate the benefits of the Mediterranean diet is reportedly increasing. In this regard, the Mediterranean-style Japanese diet can prevent the manifestation of "ME-BYO" (non-disease condition) and has anti-ageing properties, which might contribute to healthy and long living, not only for Japanese people but also for people around the world. Further research attempts of the dietary intervention are necessary for the healthy longevity and anti-ageing effects in the future.

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