

KEY POINTS

- Many healthy dietary patterns across the world have been associated with health and longevity, however, the largest body of published evidence is attributed to the traditional Mediterranean dietary pattern.
- A growing body of observational and intervention trial evidence supports that Mediterranean diet exerts anti-inflammatory effects.
- The Mediterranean diet beneficially modulates the gut microbiota and immune system, including emerging evidence for efficacy against severe acute respiratory syndrome coronavirus 2 (coronavirus disease 2019).
- The Mediterranean diet has a low Dietary Inflammatory Index illustrating its anti-inflammatory potential.
- Emerging evidence shows clinicians are not routinely recommending a Mediterranean diet despite well known evidence due to barriers such as lack of training, patient materials and concerns about potential patient adherence.

live longer chronic diseases such as cardiovascular disease (CVD), obesity, diabetes, neurodegenerative diseases and cancers have increased resulting from longer term exposure to poor lifestyles such as inactivity, unhealthy diets and smoking. Furthermore, ageing is associated with low-grade chronic inflammation called *inflammaging*, which has been defined as the gradual inability to deal with endogenous and exogenous stressors and an increase in pro-inflammatory markers which predispose to chronic diseases and morbidity and mortality [3]. Consistently, research across the globe has shown that a majority of mortality from CVD can be prevented with modifiable lifestyle risk factors such as healthy dietary patterns, rich in plant foods like the Mediterranean diet.

This narrative review aims to summarize the current evidence on the protective effects of a traditional Mediterranean diet on chronic disease risk and in the promotion of longevity and explore the physiological mechanisms with a specific focus on the anti-inflammatory effects of this traditional dietary pattern.

What is a traditional Mediterranean diet and what are the known health benefits?

Over the past few decades the literature on the beneficial effects of a Mediterranean diet has grown exponentially. However, many systematic reviews and meta-analyses of clinical intervention trials have identified that there are many definitions of

a Mediterranean diet and one could argue as many as there are countries surrounding the Mediterranean. Although there are now well established and validated scoring systems to assess adherence to a Mediterranean diet which have been used extensively in observational studies, it is important to have a clear definition when designing clinical intervention trials to ensure all the elements of this protective dietary pattern are included. Our work has focussed on the archetypal 'Cretan' Greek Mediterranean diet as originally described by Ancel Keys in the Seven Countries study, illustrated in the following definition.

The traditional Mediterranean diet is a plant-based diet which is abundant in seasonal vegetables and fruit, legumes, nuts, extra virgin olive oil used as the main source of added fat, wholegrain cereals often consumed as sourdough bread, moderate portions of fish 2–3 times weekly, fermented dairy consumed mainly as yoghurt and feta cheese most days, red meat and processed meats consumed sparingly with a preference for white meats (chicken) and game meats, free range eggs three to four times per week, fresh and dried herbs and spices, and fresh lemon juice used to flavour salads and cooked meals, water as the main beverage and wine in moderation and always with meals [4,5^{*}]. The health benefits of this dietary pattern extend to important lifestyle and cultural factors such as growing and harvesting foods, processing such as fermenting and cooking, and sharing foods while eating together. These important lifestyle factors led UNESCO in 2010 to include the Mediterranean diet on the list of the intangible cultural heritage of humanity [6].

The health benefits of the Mediterranean diet have been known for over 50 years beginning with the findings of the landmark Seven Countries study demonstrating that the lower cardiovascular mortality of Greek Mediterranean people was associated with their nutritional intake [7]. Research has consistently found that greater adherence to a Mediterranean diet is associated with a lower risk of heart disease and stroke, type 2 diabetes, certain cancers, neurodegenerative diseases such as Alzheimer's and other dementias, and reduced all-cause mortality [8]. An umbrella review of observational studies and randomized controlled trials involving more than 12.8 million people around the world investigated the association between Mediterranean diet adherence and 37 different health outcomes [9]. These studies found that for every point increase in the score of adherence to a Mediterranean diet (0 being no adherence and 9 being total adherence) there was a 10% reduction in risk of death from heart disease, cancer (breast and prostate cancers in particular),

