

Commentary

Changing the Irish dietary guidelines to incorporate the principles of the Mediterranean diet: proposing the MedÉire diet

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Abstract

Objective: In Ireland, the major causes of death are CVD. The current Irish healthy eating guidelines and food pyramid primarily advocate a low-fat diet. However, there is overwhelming scientific evidence for the benefits of a Mediterranean diet (Med Diet) in the prevention and management of metabolic disease as well as improving overall health and well-being. In the current commentary, the rationale to incorporate the principles of the Med Diet into the Irish dietary guidelines is presented.

Design: Perspectives of authors.

Setting: Local and international.

Subjects: Populations in Europe, North America and Australia.

Results: Adopting components of the Med Diet presents a more evidence-based approach to updating the current Irish dietary guidelines. Experience and lessons from other non-Mediterranean countries show that it could be a feasible and effective solution to improving the dietary habits of the Irish population to prevent and manage chronic diseases.

Conclusions: Policies and programmes to address perceived barriers to the Med Diet's implementation and uptake in non-Mediterranean countries should be promoted.

Keywords:
Mediterranean diet
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MedÉire diet

Dietary guidelines in Ireland: current perspectives

In the Republic of Ireland, it is currently estimated that 60% of adults and 25% of children are overweight or obese^(1,2). In 2017, the total lifetime cost of childhood overweight and obesity alone was estimated at €4.6 billion⁽³⁾.

We live in an obesogenic environment where work pattern changes, increased computerisation and improved infrastructure have changed the way we produce, process and distribute food, enabling easier access to unhealthful food choices⁽⁴⁾ driving obesity and metabolic diseases. Population physical activity levels have also decreased⁽⁵⁾ with technological advancements and reliance on motorised ways of transportation.

In Ireland, the leading cause of death is CVD⁽⁶⁾, with diet being a known modifiable risk factor. The purpose of the dietary guidelines in the Republic of Ireland is to encourage a healthy dietary pattern, to achieve optimal

nutrition to maintain a healthy weight with the goal to promote a positive lifestyle for everyone and to prevent nutrition-related diseases such as CVD. The guidelines are depicted by a food pyramid display and while it has been found that the overall messages are well understood, the findings of the recent Healthy Ireland Survey 2015 demonstrate that they do not seem to be translated into daily food choices or population dietary pattern changes⁽⁵⁾. In that survey, just 26% of the Irish population reported that they eat ≥ 5 portions of fruit and vegetables daily and 65% reported that they consume snack foods or sugar-sweetened drinks daily⁽⁵⁾. Not only do the guidelines seem to be followed loosely, their evidence base and translational potential may need to be revisited in the light of the more recent evidence base presented in the current commentary. However, eating behaviours are complex in nature and a country's dietary guidelines do not solely determine consumption. Factors to be considered include an individual's preferences, lifestyle, culture, and the

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accessibility and affordability of food, which may impact upon the nutritional adequacy of the diet with other far-reaching effects on the environment and economic landscapes⁽⁷⁾.

The Mediterranean diet: evidence of benefit for health and disease

The best international evidence should be at the core and foundation of the development and redevelopment of all dietary guidelines. The Mediterranean diet (Med Diet) is one of the most globally researched and healthiest dietary patterns promoted for the management of chronic diseases and longevity^(8,9).

The traditional Med Diet is predominantly a plant-based diet, characterised by a high consumption of vegetables, fruits, nuts, legumes and unprocessed cereals; a low consumption of red meat, meat products and sweets; a moderate consumption of fermented dairy (cheese and yoghurt), poultry and fish; and with red wine consumed in moderation and with meals. As a percentage of energy, total fat content can be as high as 40% with over half being mono-unsaturated fat (>20%). This is predominantly due to the liberal use of extra virgin olive oil (EVOO), the main source of added fat, which occupies a central position in the diet⁽¹⁰⁾.

While the Med Diet differs in its definition across the literature and regions, findings are consistent with respect to its many health benefits⁽¹¹⁾. The beneficial health effects are owing primarily to the low intake of saturated fat and increased intakes of fibre, functional fatty acids and lipids, antioxidants and bioactive compounds.

The Med Diet is associated with reduced mortality^(12,13), reduction in the risk of CVD⁽¹⁴⁾ and incidence of CHD⁽¹⁵⁾, cancer^(16–19) and stroke⁽²⁰⁾, and prevention of type 2 diabetes^(21,22) and metabolic syndrome⁽²³⁾. While the studies are largely observational, the landmark Spanish PRE-DIMED randomised controlled trial demonstrated a reduction in the risk of cardiovascular events by approximately 30% and a 52% reduction in diabetes incidence when participants followed a Med Diet supplemented with either nuts or EVOO^(24,25). Components of the Med Diet are also beneficial for weight loss in obesity and for maintaining a healthy weight in non-obese populations^(26,27) and in type 2 diabetes mellitus⁽²⁸⁾. The Med Diet has been shown to be beneficial in the treatment of depression⁽²⁹⁾ and for global cognition^(30–32), with emerging evidence for benefits in disability and overall quality of life^(33,34). In a recent umbrella review of meta-analyses of observational studies and randomised controlled trials, the associations between adherence to a Med Diet and health outcomes for a population of over 12.8 million people were identified and affirmed⁽⁹⁾. A reduced risk of mortality, CVD, CHD, myocardial infarction, overall cancer incidence, neurodegenerative disease and diabetes with greater adherence to the Med Diet was found. Of

note, the majority of these studies were carried out in Mediterranean countries; however, evidence is now emerging as to the beneficial effects of the Med Diet in non-Mediterranean areas.

Beyond its nutrient profile the Med Diet is palatable, sustainable and has low impact on the environment. This holistic diet provides opportunities for conserving food biodiversity and raising awareness of how to better use current agricultural systems, aiming to revive activities that minimise waste of natural resources in producing food for local and seasonal consumption⁽³⁵⁾.

Feasibility of translating the Mediterranean diet to an Irish population: lessons learned from overseas

From epidemiological and interventional analysis, adoption of the Med Diet varied between 14.0 and 65.5% in Canada and North America^(36–41). In a Swedish cohort, high adherence to a Med Diet was associated with lower cardiovascular mortality in women⁽⁴²⁾, and in the EPIC (European Prospective Investigation into Cancer and Nutrition)–Norfolk study, adherence to a predefined Med Diet showed an inverse association with incident CVD and all-cause mortality⁽⁴³⁾. In Australia, a group of researchers employ a Cretan-based Med Diet protocol in dietary interventions in non-Med Diet populations to assess the effects on metabolic conditions^(44–46). Recently, this group has published strategies for translating the traditional Med Diet into non-Mediterranean settings, which include meal plans, practical strategies and examples to attain the key principles of the diet with foods that are available and accessible locally⁽⁴⁷⁾. The Healthy Eating Pyramid in Australia⁽⁴⁸⁾ incorporates the principles of the Med Diet. Herbs and spices are included; legumes are in the ‘eat most’ section; a predominance of fruits and vegetables is supported; and olive oil has a place in the pyramid. The UK National Institute for Health and Care Excellence recommends a Mediterranean-style diet for the secondary prevention of CVD⁽⁴⁹⁾. A UK population reported that the Med Diet allowed them to redefine cultural eating habits, introduced a better quality of food and reported several physical benefits⁽⁵⁰⁾. However, barriers to its implementation in this and in a Northern Irish at-risk population included difficulty adapting to the eating pattern, limited knowledge of the diet, perception of expense and availability of foods, expectation of the time commitment to the diet, and resistance to dietary change and established eating habits^(50,51). The latter study serves well for policy makers to identify practical strategies to influence perceived barriers to bring about dietary behaviour changes towards a Med Diet in an Irish population.

While adopting a Med Diet in non-Mediterranean countries is a challenge, it is achievable. In 2016, the US National Heart, Lung, and Blood Institute agreed the importance of testing the translation of the Med Diet in the

USA and proposed an alternative healthy Mediterranean-style eating pattern⁽⁵²⁾, cognisant of local dietary practices and foods that do not have negative health effects and may be consumed alongside a Med Diet. For example, despite it not being an integral component of the Med Diet, the Dietary Guidelines for Americans 2015–2020 do not impose restrictions on egg consumption, because dietary cholesterol is not considered a concern^(13,52). This acknowledgement of incorporating aspects of local dietary practices may lead to better adoption and adherence to the new promoted guidelines and lead to significant changes to health. In addition, practical resources to promote the diet have been disseminated, aiming to easily apply the diet into the American setting. Authors have outlined practical recommendations as to how to shift current dietary practices in non-Mediterranean countries to more Med Diet pattern approaches, from replacing processed snacks with mixed tree nuts to substituting red or processed meat with seafood and legumes⁽¹⁴⁾.

Proposing a MedÉire food pyramid

Despite the substantial evidence in favour of a high-fat Med Diet, population and clinical guidelines continue to focus on low fat messages⁽⁵³⁾. In the current Irish Food Pyramid⁽⁵⁴⁾ increased consumption of fruits, vegetables and whole grains with small amounts of fats and oils are encouraged. The guidelines advise to replace high-fat foods that contain predominantly saturated fat (such as butter and cream) with foods that contain predominantly polyunsaturated and monounsaturated fats such as oils and spreads. Olive oil is grouped with other fats ('Choose rapeseed, olive, canola, sunflower or corn oils') and the message is to always cook with as little fat or oil as possible⁽⁵⁴⁾, a message that is entirely opposite to the recommendations of the Med Diet pyramid. Seed oils are susceptible to oxidation when heated, due to the high polyunsaturated fat content and low levels of phenolics⁽⁵⁵⁾. In contrast, EVOO is stable on prolonged heating, remaining rich in phenolic compounds and producing few potentially harmful polar compounds⁽⁵⁶⁾. In recent years, evidence indicates that bioactive polyphenols present in EVOO contribute substantially to many health benefits⁽⁵⁷⁾. The advice to consume 1 teaspoon of oil when cooking is in stark contrast and falls well below the recommended 50 ml per person per day that has been associated with reduction in the risk of CVD as found in the landmark PREDIMED study⁽²⁴⁾.

While we have positively moved away from a single-nutrient to a whole-of-diet approach with the Irish 2016 dietary guidelines and recommendations, there are still some inadequacies in the messages conveyed. It needs to be recognised that foods with similar fat contents can have very different nutritional values. Grouping together red meat with poultry and fish in the current Irish Food Pyramid, in the frequency promoted, is not reflective of the current

evidence base and conveys to the public that these foods are of similar nutritional value; a message that is not entirely scientifically valid. Previous work has shown that fish⁽⁵⁸⁾, olive oil^(59,60), fermented dairy products^(61–63) and red wine⁽⁶⁴⁾ have strong anti-inflammatory activities protective against CVD. While red meat contains proteins of high biological value and important micronutrients such as B vitamins, iron (both free iron and haem iron) and zinc, in comparison to oily fish it has a higher saturated fat and lower *n*-3 fat content. Regular consumption of red meat has been associated with cancer risk⁽⁶⁵⁾, heart disease⁽⁶⁶⁾ and when cooked to a high temperature, type 2 diabetes risk⁽⁶⁷⁾. Fish consumption, however, has been associated with a lower risk of CVD and CVD death⁽⁶⁸⁾. For MedÉire, it is proposed to consume two or more servings of fish, less than two servings of red meat (preferably lean cuts) and less than one serving of processed meat every week. This frequency of consumption will provide the nutritional benefits that meat favours. This contrasts with the potential two servings of meat per day that the Irish population could consume according to the current recommended guidelines⁽⁵⁴⁾.

The Med Diet with its basic themes is easily adaptable to an individual country's culture. In 2009 and 2010, through an international scientific consensus process, a new revised Med Diet pyramid was developed as a simplified main frame to be adapted to different countries' specific variations related to geographical, socio-economic and cultural contexts⁽⁶⁹⁾, focusing on local, accessible and seasonal produce. Although not produced in Ireland, the staple component, EVOO, is readily accessible in all supermarkets, food stores and markets at a reasonable price, as are other key components such as canned or dry legumes and nuts. Other fundamental foods that constitute the Med Diet pattern – such as whole grains, leafy greens and all other vegetables, beans, fish, red and white meat, fresh fruit and dairy – are grown or produced in Ireland and are abundant and affordable, highlighting that the Med Diet can be adapted for the Irish context. A recent study examining the association between dietary cost and adherence to the Med Diet in a UK population found that adherence to the diet was associated with marginally higher dietary cost, but that the potential economic barriers of high adherence would be offset by cost saving from reducing unhealthy food consumption⁽⁷⁰⁾. With many scientific and media reports increasingly being published on the health benefits of the Med Diet^(8,9,71), the key principles and ways of incorporating it into everyday life are becoming more culturally acceptable in non-Mediterranean populations^(36–38,43–51).

The Med Diet frame also takes account of the concept of sustainability with the promotion of a predominantly plant-based dietary pattern, making use of natural resources and skills, conserving a fragile and strained ecosystem^(69,72). The base of the MedÉire food pyramid would be comprised of plant-origin foods; foods that sustain the diet and foods that the Irish agricultural and food systems could support⁽⁷³⁾.

Continued meat production is inefficient in terms of use of agricultural land, as more plant-based food is required for rearing of livestock⁽⁷³⁾. The external costs of the current system in terms of climate change and food and nutrition security are increasing⁽⁷³⁾. A redirection of land for the purposes of supporting growth of plant-based foods for human consumption is needed⁽⁷⁴⁾.

The high nutritional quality of the Med Diet with its low environmental impact is a unique selling point of this diet. For the MedÉire diet, we propose the adaption of the current Irish Food Pyramid to incorporate its key principles. Consumption of vegetables, fish, olive oil and legumes in the MedÉire diet needs to be further encouraged. Given the findings of the Healthy Ireland Survey and recent studies in non-Mediterranean populations, reasons for suboptimal consumption of vegetables and barriers to adopting a Med Diet need to be explored. Information and education are key to implementation for it to become a feasible and sustainable diet for the Irish people and to overcome the main barriers including limited knowledge, expense, availability, and time and skill commitment⁽⁵¹⁾.

Addressing the education and knowledge components, incorporating the MedÉire diet into national policies and associated action plans around existing food- and diet-related programmes is key to its uptake across all ages and stages.

The Healthy Eating and Active Living policy priority programme established in 2016⁽⁷⁵⁾ aims to improve the health and well-being of service users, with a particular focus on families and children. Through the implementation of A Healthy Weight for Ireland: Obesity Policy and Action Plan 2016–2025⁽⁷⁶⁾, the number of people in Ireland eating a healthier diet by increased consumption of fruit and vegetables, reduced consumption of foods high in fat, salt and sugar, and achieving and maintaining a healthier weight, is encouraged. Activities as part of these programmes are ideal platforms for the promotion of a MedÉire diet. For example, healthy eating standards for school meals⁽⁷⁷⁾ and the Schools Meals Programme⁽⁷⁸⁾ are initiatives that can be easily targeted to teach and translate to young populations the staples of a Med Diet. Accessing main food staples such as olive oil, nuts, legumes, fish and fresh vegetables, and promoting the affordability of the Med Diet⁽⁷⁹⁾ to quell misconceptions that the cost is significantly more, also need to be promoted.

Conclusion

Ireland is set to become one of the fattest nations in Europe. A drastic overhaul of diet and lifestyle practices is needed. Adopting components of the Med Diet may present a feasible and effective solution to improve our dietary habits and prevent and manage chronic diseases. The high-quality evidence base of the anti-inflammatory Med Diet pattern has not been observed for any other diet. Observational,

interventional and meta-analyses support the consumption of a Med Diet for the prevention and reduction of CVD risk^(9,80). In terms of an evidence base for promoting dietary patterns, the Med Diet has preventive and beneficial effects for CVD, diabetes, stroke and mental health – issues at the core of Irish society. Taking an approach like the USA, first testing the feasibility and acceptability of a Med Diet in the Irish population, is warranted. Examining trials that have been carried out in non-Mediterranean populations to devise the most appropriate dietary interventions and to address barriers to implementation and change is paramount. We suggest that adapting our food and dietary pattern guidelines towards a MedÉire-type dietary pyramid, following the principles of the Med Diet (i.e. using olive oil liberally; consuming vegetables at every meal; encouraging low meat intake (with some meat-free days), instead opting for oily fish and legumes), is of high importance and urgency. Following MedÉire, there is potential to change the overall macronutrient content of the diet by the addition of key staple and functional foods to protect against chronic diseases. In such an approach, we need to overcome barriers, commence promotion and education early, engage with government and industry stakeholders to make healthier food cheaper and more accessible, and market appropriately to inform the public of the benefits of the diet.

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