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**HEALTH PROMOTING ASPECTS OF THE MEDITERRANEAN
DIET**

By

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HEALTH PROMOTING ASPECTS OF THE MEDITERRANEAN DIET

ABSTRACT

In the 1960's information regarding the diet of the Mediterranean Regions was publicized as a healthful way of eating. Information was obtained from the Seven Countries Study conducted by Ancel Keys. This study revealed that residents of these regions had a lower incidence of coronary heart disease and increased longevity. Such health benefits were connected with low intakes of saturated fat. However, several other studies since then have found the Mediterranean dietary patterns to be more than cardioprotective. A decreased risk of cancer, reduced morbidity and mortality, and a decreased risk of several other diseases are also attributed to the Mediterranean dietary practices. Other studies have also revealed the health promoting aspects of the Mediterranean Diet other than low saturated fatty acid consumption. The aspects of the Mediterranean Diet that promote health include; high monounsaturated to saturated fat ratio, high fiber intake, high consumption of fruits and vegetables, moderate consumption of dairy products, moderate alcohol consumption, and a positive relationship with food. Each component of the Mediterranean Diet provides health benefits such as decreased risk of cardiovascular disease, decreased risk of certain forms of cancer, and longevity.

INTRODUCTION

The Mediterranean Diet can be defined as the dietary pattern found in the olive-growing areas surrounding the Mediterranean Sea (1). Due to evidence from Ancel Key's Seven Countries Study in the 1960's, many researchers and public health professionals have encouraged adoption of this diet for its health promoting aspects (2).

The aspects of the Mediterranean Diet that promote health include; high monounsaturated to saturated fat ratio, high fiber intake, high consumption of fruits and vegetables, moderate consumption of dairy products, moderate alcohol consumption, and a positive relationship with food (1). Each component of the Mediterranean Diet provides health benefits such as decreased risk of cardiovascular disease, decreased risk of certain forms of cancer, and longevity.

THE MEDITERRANEAN DIET PYRAMID

The Seven Countries Study originally discovered that countries of the Mediterranean region had the lowest incidence of coronary heart disease, morbidity, and mortality. Through dietary analysis, the diets of the Mediterranean areas were much lower in saturated fat and therefore were attributed to the low rates of heart disease (1). Since then, several other studies have discovered other healthful aspects of the Mediterranean Diet. One recent study conducted at Tufts University, discovered that, "Consuming a Mediterranean-style diet rich in olive oil, whole grains, fruits, vegetables, and nuts may reduce the risk of cardiovascular disease in patients with Metabolic Syndrome." This may be due to actions on inflammation and dysfunction of the cells lining the inner surfaces of blood vessels (3).

In 1994 the Mediterranean Diet Pyramid was presented based on food patterns characteristic of Crete, Greece, and Italy. The diet is abundant in plant foods, mainly breads and cereals. Fruits and vegetables are eaten in large amounts daily with fruit being the typical daily dessert. Olive oil is the primary source of fat and low fat dairy in the form of cheese and yogurt is eaten in small amounts daily. Lean meat, mostly fish is consumed in moderate amounts, zero to four eggs are consumed weekly, and red meat is consumed rarely or in very small amounts. Wine is consumed mainly with meals and in very low amounts. Physical activity through working in the field or kitchen is preformed daily (4). Each component of the Mediterranean Pyramid provides pleasant tastes and positive health effects (2).

ASPECTS OF THE MEDITERRANEAN DIET

High Monounsaturated Fat

Total fat content of the Mediterranean Diet is around 30 percent in Italy and around 40 percent in Greece. However, a hallmark element of the Mediterranean Diet includes a high consumption of monounsaturated fat in the form of olive oil. Conversely, saturated fatty acid intake is low. Substitution of saturated fat with monounsaturated fat is associated with a reduced risk of coronary heart disease by lowering low-density Lipoprotein (LDL) cholesterol (5). Furthermore, olive oil increases high-density Lipoprotein (HDL) cholesterol more than both polyunsaturated fatty acids and carbohydrates, allowing it to be an optimal energy generating nutrient (1).

Fatty acids found in olive oil are protected by other beneficial compounds including antioxidants such as carotenes, tocopherols, and phenolic compounds. These antioxidants inactivate the harmful effects of free radicals decreasing arterial stiffness (5).

Several studies have compared the effects of sunflower oil and olive oil and have discovered that olive oil substantially decreases systolic blood pressure. In one study, reported in the Journal of Clinical Nutrition, olive oil was found to reduce the need for daily pharmaceutical antihypertensive treatment by 48 percent compared to 4 percent from sunflower oil. The suggested mechanism behind this finding could be accredited to the polyphenols which enhance nitric acid concentrations, dilating the arteries, reducing blood pressure. Additionally, polyphenols are absent in sunflower oil (5).

High concentrations of Vitamin E are also found in olive oil which reduces the overall risk for Coronary Heart Disease. Additionally, olive oil expresses some protection against Breast and Sporadic Colorectal cancer. In fact, most centenarians in the Mediterranean region attribute their longevity to their diet, more specifically to olive oil (1).

High Fiber

The Mediterranean Diet entails a high consumption of grains and cereals, including bread and a low consumption of meat and meat products (1). One study considered dietary patterns in Southern Italy and discovered that the most important component of the daily meal was bread. Cereals and homemade or commercially made pastas were consumed in appreciable quantities which correspond to around 60 percent of total dietary intake (2). Carbohydrates provide the body with needed energy and contain several vitamins, minerals, and fiber. Carbohydrates are also lower in fat which decreases the risk of heart disease and other ailments. Furthermore, several studies have proven that diets high in fiber reduce the risk of cancer and heart disease as well (6).

In addition to high bread and cereal intakes, the Mediterranean Diet includes regular consumption of legumes. Legumes include beans, peas, and nuts and are high in protein, carbohydrates, vitamins, and fiber. Compared to the American pyramid, legumes are listed separately and are eaten on a daily basis. They contain iron and zinc similar to meat protein yet are lower in fat. Consumption of legumes provides increased availability of glucose as fuel and polysaccharides found in legumes help to control blood glucose in individuals with diabetes. Additionally, replacing meat proteins with soybean protein has been shown to lower blood lipids, and therefore decrease the risk of heart disease risk (6).

Due to a higher consumption of grains, the residents of the Mediterranean region eat less meat. However, fish is consumed several times per week. Fish is high in omega three fatty acids which has several health promoting aspects. Several studies have illustrated that alpha-linolenic acid is associated with a lower risk of Myocardial Infarction and Fatal Ischemic Heart Disease in women and men. Also, the Nurses' Health Study revealed a reduced risk for stroke with increasing fish consumption. Several possible mechanisms are responsible for the positive effects of omega-three fatty acids in regards to cardiovascular health. First, omega three is hypotriglyceridemic and plays a therapeutic role in treating hypertriglyceridemia because both EPA and DHA have triglyceride-lowering properties. Omega three, more specifically DHA, also has a small role in the management of hypertension. Lastly, modest prolonged bleeding times is another benefit of omega three fatty acids. Evidence shows that omega three decrease platelet aggregation and may enhance fibrinolysis (7).

High Fruit and Vegetable Intakes

A great deal of evidence indicates that fruits and vegetables are excellent sources of vitamins, minerals, antioxidants, phytochemicals, and fiber to promote a healthy lifestyle (6). The Mediterranean Diet supplies more than 400 grams of vegetables per day, guaranteeing a high intake of beta carotene, vitamin C, tocopherols, and many other essential micronutrients, polyphenols, and anthocyanines. One of the most common traditions of vegetable consumption is in the form of salads consisting of dark green lettuces. Other common vegetables consumed in Italy include tomatoes, carrots, artichokes, eggplant, and asparagus. Fruit is consumed in large amounts as well and is a main source of dessert. Common fruits include lemons, strawberries, oranges, apples, and peaches (1).

Plant foods also supply several nutrients with antioxidant and anticarcinogenic properties such as carotenoids, vitamin C, vitamin E, flavinoids, phytoesters, folates, and fiber. These properties are linked to a reduced risk of several types of cancers of the upper aerodigestive tract (8).

Fruits and vegetables are rich in magnesium, potassium, and calcium which play synergistic roles in the regulation of blood pressure (1). The Mediterranean Diet has similar characteristics of Dietary Approaches to Stop Hypertension (DASH) diet in America. The DASH diet recommends 8-10 servings of fruits and vegetables per day and individuals who follow this diet have shown drastic improvements in their blood pressure (5).

Dairy Consumption

A moderate consumption of dairy products, mainly in the form of yogurt and cheese is typical of the Mediterranean Diet. In the traditional Greek Diet, milk is

consumed in relatively low amounts. However, cheese and yogurt intake is relatively high. Feta cheese for example, is regularly added to most salads and vegetable stews (1).

Beneficial effects of dairy consumption are apparent in several observational studies. One prospective cohort study reported in the American Journal of Clinical Nutrition, in particular assessed the impact of low fat and whole fat dairy consumption and the risk of hypertension. The results of this study revealed that low fat, and not whole fat dairy consumption was attributed to a lower risk for the development of hypertension in the Mediterranean region (9).

Dairy contributes to bone health because it contains vitamin D and calcium. Some nutrition experts have questioned whether or not the Mediterranean Diet provides enough calcium especially for women and growing children. The Mediterranean Diet Pyramid illustrated that dairy in the form of cheese and yogurt is consumed daily but in smaller amounts. Professionals would recommend that adding low fat milk would increase the consumption of dairy and add more calcium into the diet. Nevertheless, cheese and yogurt are the main source of dairy in this diet. The most common types of cheeses consumed in Italy include, asiago, fontina, gorgonzola, parmiagiano reggiano, marscapone, and mozzarella. Mozzarella cheese is often eaten with fresh tomato slices, basil, and a drizzle of olive oil (6).

Moderate Alcohol Consumption

A moderate consumption of wine during meals is one of the most well known components of the Mediterranean Diet. Moderate drinking of alcoholic beverages has shown to reduce the risk of Coronary Heart Disease. The proposed mechanism behind this hypothesis is that alcohol increases serum levels of HDL cholesterol. Evidence has

shown that a high level of HDL in the plasma is just as important as low levels of LDL and total cholesterol levels (1). The US Department of Agriculture and the US Department of Health and Human Services define moderate drinking as no more than one drink a day for women, and no more than two drinks per day for most men (10). Along with the consumption of olive oil, most centenarians in the Mediterranean regions have attributed their health and longevity to the consumption of wine in their diet (1).

Positive Relationship with Food

Obviously, the diet of the people in the Mediterranean region is healthful. However, there is another immense component. One must ask the question, is there also a connection between their way of life and their health and longevity? Claudia Probart is a Registered Dietitian and Professor of Nutrition at Pennsylvania State University. She travels to Italy every year with students where they study the diet and culture of this region. She believes that how one eats is just as important as what one eats. “The health and longevity associated with the Mediterranean Diet cannot be explained by biochemistry alone. Cultural, environmental, and genetic factors share some role in the benefits” (11).

One vast difference between the diet of the Mediterranean people and Americans is that the Italians have a great passion for and positive relationship with food. Probart also mentioned how stress and negative emotions experienced by many busy Americans may create chaos in digestion (11). Mediterranean residents take pleasure in their food and they make meal time an affair. They eat slow, enjoy company, and take walks

afterwards. Italians for example, enjoy their food and linger over pleasant trattoria lunches, which is one habit that may improve their health (11). Americans seem too busy to do so and several factors are attributed to America's negative relationship with food.

Many anarchic eating habits are abundant in America. According to Anorexia Nervosa and Related Eating Disorder Inc. (ANRED), an estimated 1 percent of girls between the ages of ten to twenty are anorexic (12). Food has been used as a way to take control of one's life; an author noted that, "only humans will refuse food when in fact they are hungry." There seems to be a kind of madness possessing many Americans who are either eating all of the time or almost never eating but instead are thinking about it all of the time. Americans are obsessed with weight loss and dieting. Since the 1970's and 1980's new and popular diet books seem to come out every month. These fads create conflict and guilt with the readers who are constantly tempted by the abundance of food surrounding them and are tormented with aloof desires to be model-like and bone thin (2).

Another important component of the Mediterranean lifestyle is regular physical activity. Mid-day strolls are often taken after a noon meal and work in the field or kitchen is the customary form of physical activity. Mireille Guiliano, author of *French Women Don't Get Fat*, described the difference between the French woman's exercise routine and the American woman's exercise routine. "American women seem to have two modes: sitting or spinning. French women prefer the gentler, more regular varieties of all-day movement-'the slow burn', in American terms. And as you might expect, our approach, true Cartesian principles, demands that you use your mind as you use your body. Mindless exercise is almost as bad as mindless eating. We strive to diversify the physical

movement in our lives and practice it as second nature. And we cultivate awareness as we go (12).”

METHODS OF INCORPORATING THE MEDITERRANEAN DIET

The Mediterranean Diet may not be just for those living in the Mediterranean region. There are several ways in which one can incorporate the ideas, techniques, and ingredients of this healthful lifestyle into their everyday life. First, cook with vitamin E-rich extra virgin olive oil. Replace butter or margarine with olive oil when cooking, drizzle it over baked vegetables, or use it as a salad dressing. Second, shop for simple, fresh, high quality ingredients. Buy locally grown produce and shop for what is in season to avoid high prices. Shop daily and in small amounts for the best fresh produce and experience. Third, cook pasta and serve it al dente. Make delicious sauces using fresh vegetables, herbs, and spices. Whole grains should be a major component of ones diet. Fourth, participate in leisurely midday meals with friends and family and fit in a short stroll afterwards. Finally, bring joy into every meal by dinning outdoor, with friends, or pleasant environments. Make every meal an affair or celebration and take the time to prepare it (11).

CONCLUSION

Since Key’s Seven Countries Study in the 1960’s, evidence supporting the health benefits of the Mediterranean Diet has escalated. This precise olive growing area encircling the Mediterranean Sea encompasses several health promoting aspects that contribute to increased health and longevity and decreased risk for disease including Coronary Heart Disease and certain forms of cancer. Components of the Mediterranean Diet that contribute to improved health include high monounsaturated to saturated fat

ratio, high fiber intake, high consumption of fruits and vegetables, moderate consumption of dairy products, moderate alcohol consumption, and a positive relationship with food. Although these features are typical of the Mediterranean region, there are several ways one could incorporate the principles into a healthy lifestyle. Cook with extra virgin olive oil, shop daily and in season for simple fresh ingredients, cook fresh pasta, engage in a midday meal followed by a afternoon stroll, and bring joy to every meal. By incorporating these ideas, a healthier lifestyle is most likely to follow.

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