

Honey as a helper in Mediterranean-style diets among adult Americans¹

Honey with olive oil is a distinctive culinary pairing to help Americans eat foods like fish, whole grains, and greens, which are foundational in a Mediterranean-style diet

Study Overview: The Mediterranean-style Diet (MedD) is among three patterns recommended in the 2020-25 *Dietary Guidelines for Americans*. Although Americans are interested in the health benefits associated with the MedD, wide-spread adherence remains elusive. A new diet modeling study¹ identified three simple recipes that when substituted for commonly consumed American food choices, can help U.S. adults more closely follow a Mediterranean-style diet. Honey is a traditional food consumed in the Mediterranean region used in these recipes to improve palatability, which is a key factor in consumer food choices. Study authors concluded that: “Honey added to the simple substitutions may increase palatability without sacrificing nutritional benefit.”

Method in Brief: Using the National Health and Nutrition Examination Survey (NHANES 2007-2018), the primary dataset used in determining nutrition policy in the U.S., demographic and self-reported dietary data on 19,978 of adults, ages 25-65 were analyzed. Alignment to a Mediterranean-style dietary pattern was determined by calculating a MedD scoring system appropriate for western countries (0-100 points for the total score, with higher scores indicating greater adherence to the MedD). Participants were categorized as high-scoring adherence (HA) if they were in the top 25% of MedD scores. The remaining 75% of the study population was categorized as the non-high adherence group (nHA). Diets of the HA group were used to determine food groups that contribute to their high adherence status. These food groups were then used to create isocaloric food substitutions to be modeled to assess potential to improve MedD scores among adult Americans.

Findings: The study found that the vast majority of Americans fall short in following a Mediterranean-style diet. Although the average MedD score for the HA (16.45 points out of 100) was more than twice that of the nHA (7.06 points), the results from the study clearly show there is significant room for improvement for both groups. The average MedD score of nHA improved over 3.5 points, (increased mean score from 7.1 to 10.6 points) when the 5 substitutions shown below were made over the 2-day dietary intakes reported in the survey.

Five isocaloric food substitutions can help adult Americans eat a Mediterranean-style diet*

1) Increase olive oil from non-use to partial use (This swap showed the biggest impact)	4) 1 oz. of whole grain for 1 oz. of refined grain
2) 4 oz. of fish for 4 oz. of red meat	5) 0.75 cups of whole fruit in place of fruit juice (due to reducing added sugar by 2.75 tsp)
3) 4.9 cups of kale for 2 cups of starchy/root vegetable	

*Substitution amounts differ in order to make calorie equivalent substitutions.

Given the high impact of using olive oil in place of other fats/oils, honey-olive oil pairings were identified in recipes for other MedD promoting foods, namely fish, whole grains, and leafy greens, and increasing palatability.

The overall effect of honey paired with these food combinations could help 98% of adult Americans eat a more Mediterranean-style diet. **

Substitution 1) Fish in a honey/olive oil marinade swapped for red meat.	Substitution 2) Whole grain (quinoa tabouleh) with honey/olive oil dressing swapped for a refined grain.	Substitution 3) A leafy green salad topped with strawberries in a honey/herb/olive oil dressing swapped for a starchy vegetable.
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**Honey on its own would not improve the Med score, but when used with olive oil as a culinary ingredient paired with fish, fruit, whole grain, and vegetable, the net overall effect is improved MedD. Despite the addition of a small amount of sugar from honey, the overall impact on MedD score remained positive when all three of these substitutions were made in the total adult population (increased the average score from 8.9 to 13.3 points per correspondence with the study author 8.31.2022).

Conclusions: These findings offer empirical evidence that making simple dietary swaps can improve MedD score and thus adherence to the MedD. Using honey as a culinary tool to increase palatability of the dietary swaps may help Americans seeking to adopt a Mediterranean-style diet. Clinicians and/or practitioners may find the simplicity of the message of simple dietary swaps useful to encourage adherence to a Mediterranean-style diet.

¹ Overcash, F., Crusan, A. Substitution modeling shows simple dietary changes increase Mediterranean-style diet pattern scores for U.S. adults. *Current Developments in Nutrition* July 23, 2022 6(7). <https://doi.org/10.1093/cdn/nzac125> <https://academic.oup.com/cdn/advance-article/doi/10.1093/cdn/nzac125/6649293>