

## Supplementary Online Content

Valls-Pedret C, Sala-Vila A, Serra-Mir M, et al. Mediterranean diet and age-related cognitive decline: a randomized clinical trial. *JAMA Intern Med*. Published online May 11, 2015. doi:10.1001/jamainternmed.2015.1668.

**eTable 1.** Baseline Consumption of Key Foods and Changes by Study Group

**eTable 2.** Baseline Biomarkers of Adherence to Supplemental Foods and Changes by Intervention Group.

**eTable 3.** Unadjusted Baseline Cognitive Test Scores and Changes by Study Group

This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1. Baseline Consumption of Key Foods and Changes by Study Group<sup>a</sup>**

	MeDiet + EVOO (n=127)	MeDiet + Nuts (n=112)	Control diet (n=95)	P Value <sup>b</sup>
<b>Virgin olive oil (g/d)</b>				
Baseline	15.6 (12.2 to 19.0)	15.0 (11.4 to 18.6)	16.3 (12.3 to 20.2)	.89
Change	35.15 (31.6 to 38.7) <sup>c</sup>	13.2 (8.8 to 17.6)	10.6 (6.6 to 14.7)	<.001
<b>Refined olive oil (g/d)</b>				
Baseline	20.5 (17.3 to 23.6)	18.1 (14.7 to 21.6)	21.1 (17.6 to 24.7)	.44
Change	-20.5 (-23.6 to -17.3) <sup>c</sup>	-0.8 (-4.7 to 3.1)	-4.2 (-8.1 to -0.3)	<.001
<b>Total nuts (g/d)</b>				
Baseline	12.2 (9.6 to 14.9)	13.3 (10.2 to 16.3)	12.2 (9.4 to 15.0)	.83
Change	-4.7 (-9.1 to -0.2)	16.4 (12.7 to 20.1) <sup>c</sup>	-7.3 (-9.8 to -4.7)	<.001
<b>Cereals (servings of 150 g/d)</b>				
Baseline	5.34 (4.92 to 5.77)	5.26 (4.87 to 5.66)	4.92 (4.52 to 5.31)	.33
Change	-1.57 (-1.97 to -1.16)	-1.36 (-1.76 to -0.96)	-1.06 (1.48 to -0.64)	.23
<b>Vegetable (servings of 125 g/d)</b>				
Baseline	3.39 (3.14 to 3.65)	3.20 (2.91 to 3.50)	2.98 (2.70 to 3.25)	.11
Change	-0.12 (-0.42 to 0.17)	-0.20 (-0.50 to 0.09)	-0.25 (-0.51 to 0.02)	.83
<b>Legumes (servings of 40 g/d)</b>				
Baseline	0.49 (0.43 to 0.54)	0.46 (0.42 to 0.50)	0.51 (0.46 to 0.56)	.36
Change	0.20 (0.14 to 0.26)	0.18 (0.13 to 0.24)	0.02 (-0.05 to 0.08) <sup>c</sup>	<.001
<b>Fruit (servings of 125 g/d)</b>				
Baseline	3.75 (3.42 to 4.08)	3.58 (3.23 to 3.92)	3.70 (3.28 to 4.12)	.77
Change	-0.14 (-0.49 to 0.21)	-0.11 (-0.49 to 0.28)	-0.23 (-0.68 to 0.22)	.91
<b>Fish (servings of 125 g/d)</b>				
Baseline	0.99 (0.9 to 1.1)	0.89 (0.8 to 1.0)	0.86 (0.8 to 0.9)	.039 <sup>d</sup>
Change	0.01 (-0.06 to 0.08)	0.09 (0.02 to 0.16)	0.01 (-0.05 to 0.08)	.19
<b>Meat or meat products (servings of 150 g/d)</b>				
Baseline	0.98 (0.92 to 1.05)	1.03 (0.95 to 1.10)	0.94 (0.86 to 1.01)	.22
Change	-0.09 (-0.15 to 0.02)	-0.17 (-0.24 to -0.10)	-0.19 (-0.26 to -0.12)	.084
<b>Dairy products (servings of 200 g/d)</b>				
Baseline	1.71 (1.53 to 1.89)	1.84 (1.60 to 2.07)	1.90 (1.64 to 2.15)	.46
Change	0.04 (-0.14 to 0.22)	-0.21 (-0.40 to -0.02)	0.01 (-0.23 to 0.25)	.17
<b>Alcohol (g/d)</b>				
Baseline	11.4 (8.6 to 14.3)	12.4 (9.5 to 15.2)	12.9 (9.2 to 16.7)	.79

© 2015 American Medical Association. All rights reserved.

Change	-0.1 (-1.8 to 1.7)	-0.9 (-2.5 to 0.8)	-0.5 (-3.0 to 2.0)	.84
<b>Wine (ml/d)</b>				
Baseline	77.7 (57.3 to 98.1)	82.8 (61.7 to 103.9)	71.8 (45.7 to 97.8)	.80
Change	14.1 (-307 to 250)	9.3 (-250 to 250)	12.4 (-267 to 400)	.84
<b>14-point MeDiet score</b>				
Baseline	8.6 (8.3 to 8.9 )	8.3 (8.0 to 8.7 )	8.7 (8.4 to 9.1 )	.20
Change	1.87 (1.52 to 2.22 )	2.38 (2.03 to 2.72 )	0.40 (0.03 to 0.77) <sup>c</sup>	<.001

Abbreviations: MeDiet, Mediterranean diet; EVOO, extra-virgin olive oil.

<sup>a</sup>Data are means (95% CI intervals).

<sup>b</sup>Pvalue for comparisons across groups with one-way ANOVA.

<sup>c</sup>Significantly different from the other intervention groups (Bonferroni post-hoc test).

<sup>d</sup>Significant difference among the three intervention groups (Bonferroni post-hoc test).

**eTable 2. Baseline Biomarkers of Adherence to Supplemental Foods and Changes by Intervention Group<sup>a</sup>**

Abbreviations: EVOO, extra-virgin olive oil; MeDiet, Mediterranean diet.

<sup>a</sup>Data are expressed as mean (95% confidence interval).

<sup>b</sup>Pvalue for comparisons between groups with one-way ANOVA.

	MeDiet + EVOO	MeDiet + Nuts	Control diet	P Value <sup>b</sup>
<b>Urinary hydroxytyrosol, µg/L<sup>c</sup></b>				
Baseline	133.4 (100.9 to 165.9)	179.5 (126.2 to 232.7)	168.7 (131.2 to 206.2)	.27
Change	49.6 (8.5 to 90.7)	-4.5 (-42.5 to 33.4)	-8.9 (-44.3 to 26.6)	.054
<b>Plasma α-linolenic acid, %<sup>d</sup></b>				
Baseline	0.36 (0.27 to 0.45)	0.30 (0.25 to 0.36)	0.33 (0.27 to 0.39)	.47
Change	-0.05 (-0.12 to 0.02)	0.19 (0.09 to 0.29) <sup>e</sup>	0.03 (-0.07 to 0.12)	<.001

<sup>c</sup>Measured in 65 participants (n=20, n=21, and n=24, respectively).

<sup>d</sup>Measured in 75 participants (n=24, n=28, and n=23, respectively).

<sup>e</sup>Significantly different from the other intervention groups (Bonferroni post-hoc test).

**eTable 3. Unadjusted Baseline Cognitive Test Scores and Changes by Study Group<sup>a</sup>**

	MeDiet + EVOO	MeDiet + Nuts	Control diet	P Value <sup>b</sup>
<b>MMSE<sup>c</sup></b>				
Baseline	27.91 (27.66 to 28.15) <sup>d</sup>	28.17 (27.92 to 28.42)	28.45 (28.19 to 28.71)	.012
Change	0.18 (-0.06 to 0.44)	-0.11 (-0.42 to 0.21)	-0.24 (-0.56 to 0.08)	.10
<b>RAVLT, total learning<sup>c</sup></b>				
Baseline	38.48 (37.03 to 39.94)	39.68 (38.04 to 41.32)	40.09 (38.25 to 41.94)	.35
Change	4.42 (3.07 to 5.77)	4.18 (2.86 to 5.49)	2.31 (0.89 to 3.72)	.074
<b>RAVLT, delayed recall<sup>c</sup></b>				
Baseline	6.39 (5.83 to 6.94)	6.48 (5.91 to 7.05)	6.66 (5.99 to 7.34)	.81
Change	1.46 (1.02 to 1.90)	1.78 (1.30 to 2.26)	0.99 (0.48 to 1.50)	.083
<b>Paired associates<sup>c</sup></b>				
Baseline	14.94 (14.37 to 15.51)	15.41 (14.73 to 16.09)	15.12 (14.36 to 15.87)	.59
Change	0.26 (-0.31 to 0.82)	0.35 (-0.26 to 0.96)	-0.03 (-0.71 to 0.65)	.69
<b>Verbal fluency<sup>e</sup></b>				
Baseline	18.00 (16.96 to 19.04)	20.44 (18.52 to 22.35)	19.51 (17.85 to 21.18)	.058
Change	0.57 (-0.56 to 1.69)	-1.18 (-2.67 to 0.31)	-0.08 (-1.83 to 1.68)	.21
<b>Digit span forward<sup>e</sup></b>				
Baseline	5.26 (4.97 to 5.54)	5.27 (4.86 to 5.68)	5.26 (4.90 to 5.63)	.99
Change	0.09 (-0.17 to 0.34)	0.24 (-0.90 to 0.57)	0.05 (-0.29 to 0.39)	.67
<b>Digit span backward<sup>e</sup></b>				
Baseline	3.66 (3.37 to 3.95)	3.97 (3.64 to 4.30)	3.95 (3.60 to 4.30)	.28
Change	0.30 (-0.07 to 0.67)	0.12 (-0.27 to 0.52)	-0.11 (-0.44 to 0.23)	.28
<b>Color Trail 1<sup>e,f</sup></b>				
Baseline	64.98 (58.95 to 71.00)	61.47 (52.51 to 70.43)	53.57 (44.22 to 62.92)	.11
Change	-6.28 (-10.78 to -1.78) <sup>d</sup>	3.26 (-3.99 to 10.51)	4.56 (-2.22 to 11.35)	.013
<b>Color Trail 2<sup>e,f</sup></b>				
Baseline	143.69 (127.93 to 159.45)	125.10 (109.31 to 140.89)	126.26 (106.43 to 146.10)	.20
Change	8.17 (-5.67 to 22.01)	24.36 (5.03 to 43.69)	33.93 (14.49 to 53.38)	.073

Abbreviations: MeDiet, Mediterranean diet; EVOO, extra-virgin olive oil.

<sup>a</sup>Data are means (95% CI intervals).

© 2015 American Medical Association. All rights reserved.

<sup>b</sup>Pvalue for comparisons across groups with one-way ANOVA.

<sup>c</sup>Measured in 334 participants (n=127, n=112, and n=95, respectively).

<sup>d</sup>Significantly different from control group (Bonferroni post-hoc test).

<sup>e</sup>Measured in 96 participants (n=41, n=25, and n=30, respectively).

<sup>f</sup>Lower scores indicate improvement.