**Supplemental Table 1.** Associations of evolutionary-concordance and Mediterranean diet and evolutionary-concordance lifestyle pattern scores with all-cause mortality in the Iowa Women’s Health Study (n = 35,221), according to categories of other risk factors, 1986 – 2012

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Evolutionary-concordance diet score |  | Mediterranean diet score | Evolutionary-concordance lifestyle score |
| Diet score variable | **HR**\***(95% CI)** |  | **HR**\***(95% CI)** | **HR**†**(95% CI)** |
| Age, years |  |  |  |  |  |  |
|  ≤ 61 |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 1.00 (0.94, 1.08) |  | 0.95 (0.89, 1.02) | 0.63 (0.59, 0.68) |
|  3 | 0.96 (0.90, 1.03) |  | 0.92 (0.85, 0.98) | 0.65 (0.61, 0.69) |
|  4 | 0.98 (0.91, 1.06) |  | 0.85 (0.79, 0.92) | 0.55 (0.52, 0.59) |
|  5 | 0.94 (0.87, 1.02) |  | 0.79 (0.73, 0.85) | 0.44 (0.41, 0.48) |
|   *P for trend* | *0.19* |  | *<0.01* | *<0.01* |
|  > 61 |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.98 (0.92, 1.04) |  | 0.95 (0.89, 1.00) | 0.74 (0.70, 0.78) |
|  3 | 0.99 (0.93, 1.05) |  | 0.95 (0.89, 1.00) | 0.74 (0.70, 0.79) |
|  4 | 0.97 (0.91, 1.03) |  | 0.94 (0.89, 1.00) | 0.67 (0.64, 0.71) |
|  5 | 0.96 (0.90, 1.02) |  | 0.87 (0.82, 0.93) | 0.60 (0.56, 0.64) |
|   *P* *for trend* | *0.16* |  | *0.01* | *<0.01* |
|  *P* *for interaction* | *0.80* |  | *0.07* | *<0.01* |
|  |  |  |  |  |  |  |
| Education |  |  |  |  |  |  |
|  ≤ High school  |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 1.00 (0.94, 1.05) |  | 0.94 (0.89, 0.99) | 0.66 (0.62, 0.69) |
|  3 | 0.95 (0.90, 1.01) |  | 0.90 (0.85, 0.95) | 0.66 (0.63, 0.70) |
|  4 | 0.94 (0.88, 0.99) |  | 0.88 (0.82, 0.93) | 0.58 (0.55, 0.61) |
|  5 | 0.96 (0.90, 1.02) |  | 0.82 (0.77, 0.87) | 0.50 (0.47, 0.54) |
| *P* *for trend* | *0.33* |  | *<0.01* | *<0.01* |
|  > High school |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.96 (0.88, 1.04) |  | 0.93 (0.86, 1.00) | 0.70 (0.65, 0.76) |
|  3 | 0.99 (0.91, 1.06) |  | 0.95 (0.88, 1.03) | 0.73 (0.68, 0.79) |
|  4 | 0.99 (0.92, 1.07) |  | 0.91 (0.84, 0.98) | 0.64 (0.60, 0.69) |
|  5 | 0.95 (0.88, 1.02) |  | 0.82 (0.76, 0.89) | 0.54 (0.50, 0.59) |
| *P* *for trend* | *0.04* |  | *<0.01* | *<0.01* |
| *P* *for interaction* | *0.32* |  | *0.57* | *0.10* |
|  |  |  |  |  |  |
| Chronic disease‡  |  |  |  |  |  |  |
|  Yes |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.98 (0.88, 1.09) |  | 1.02 (0.92, 1.13) | 0.70 (0.64, 0.77) |
|  3 | 1.05 (0.95, 1.17) |  | 1.03 (0.94, 1.14) | 0.71 (0.65, 0.78) |
|  4 | 0.99 (0.89, 1.10) |  | 0.93 (0.84, 1.04) | 0.64 (0.58, 0.70) |
|  5 | 1.10 (0.99, 1.22) |  | 0.91 (0.83, 1.02) | 0.55 (0.49, 0.61) |
|   *P* *for trend* | *0.12* |  | *0.28* | *<0.01* |
|  No |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.99 (0.94, 1.04) |  | 0.92 (0.87, 0.96) | 0.67 (0.63, 0.70) |
|  3 | 0.95 (0.90, 1.00) |  | 0.89 (0.85, 0.94) | 0.68 (0.65, 0.72) |
|  4 | 0.95 (0.91, 1.01) |  | 0.88 (0.84, 0.93) | 0.60 (0.57, 0.63) |
|  5 | 0.92 (0.87, 0.97) |  | 0.80 (0.76, 0.84) | 0.51 (0.49, 0.54) |
|   *P* *for trend* | *<0.01* |  | *<0.01* | *<0.01* |
|  *P* *for interaction* | *<0.01* |  | *0.05* | *0.67* |
|  |  |  |  |  |  |  |
| Total energy intake |  |  |  |  |  |  |
| ≤ 1,717.4 kcal/day |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.96 (0.90, 1.03) |  | 0.94 (0.89, 0.99) | 0.68 (0.64, 0.73) |
|  3 | 0.96 (0.90, 1.03) |  | 0.92 (0.87, 0.98) | 0.70 (0.66, 0.74) |
|  4 | 0.93 (0.87, 1.00) |  | 0.89 (0.83, 0.95) | 0.61 (0.58, 0.65) |
|  5 | 0.93 (0.86, 0.99) |  | 0.82 (0.76, 0.89) | 0.49 (0.46, 0.53) |
|   *P* *for trend* | *0.02* |  | *<0.01* | *<0.01* |
| > 1,717.5 kcal/day |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.97 (0.94, 1.06) |  | 0.95 (0.87, 1.01) | 0.67 (0.62, 0.71) |
|  3 | 1.03 (0.90, 1.02) |  | 0.91 (0.86, 0.99) | 0.68 (0.64, 0.72) |
|  4 | 1.01 (0.92, 1.05) |  | 0.89 (0.84, 0.97) | 0.60 (0.56, 0.64) |
|  5 | 0.97 (0.92, 1.06) |  | 0.88 (0.78, 0.89) | 0.55 (0.51, 0.58) |
|   *P* *for trend* | *0.52* |  | *<0.01* | *<0.01* |
|  *P* *for interaction* | *0.51* |  | *0.99* | *0.11* |
|  |  |  |  |  |  |  |
| Use of HRT |  |  |  |  |  |  |
|  Current or past |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.97 (0.90, 1.05) |  | 0.93 (0.87, 1.00) | 0.65 (0.60, 0.70) |
|  3 | 0.95 (0.95, 1.02) |  | 0.91 (0.84, 0.97) | 0.68 (0.64, 0.73) |
|  4 | 0.93 (0.86, 1.01) |  | 0.88 (0.82, 0.95) | 0.61 (0.57, 0.65) |
|  5 | 0.95 (0.88, 1.02) |  | 0.84 (0.78, 0.91) | 0.52 (0.48, 0.56) |
|   *P* *for trend* | *0.14* |  | *<0.01* | *<0.01* |
|  Never |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 | 1.00 |
|  2 | 0.99 (0.94, 1.05) |  | 0.94 (0.89, 0.99) | 0.69 (0.65, 0.73) |
|  3 | 0.98 (0.92, 1.03) |  | 0.93 (0.88, 0.98) | 0.69 (0.66, 0.73) |
|  4 | 0.97 (0.92, 1.03) |  | 0.90 (0.84, 0.95) | 0.60 (0.57, 0.64) |
|  5 | 0.96 (0.90, 1.02) |  | 0.81 (0.76, 0.86) | 0.52 (0.49, 0.55) |
|   *P* *for trend* | *0.15* |  | *<0.01* | *<0.01* |
|  *P* *for interaction* | *0.93* |  | *0.70* | *0.71* |

Abbreviations: HR, hazards ratio; CI, confidence interval; HRT, hormone replacement therapy.

\* HR from Cox proportional hazards models. Covariates included age (years; continuous), smoking status (current, past, never smoker), education (< high school, high school, > high school), body mass index (weight [kg]/height [m]2; continuous), physical activity (low, medium, high), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), and chronic disease (yes/no). *P* for interaction from stratified risk factor\*diet score interaction term in the Cox proportional hazards models.

† HR from Cox proportional hazards models. Covariates included age (years; continuous), education (< high school, high school, > high school), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), chronic disease (yes/no), and evolutionary-concordant diet score (quintiles). *P* for interaction from stratified risk factor\*diet score interaction term in the Cox proportional hazards models.

‡ Patients with diabetes, heart disease, heart attack and cirrhosis were considered to have chronic diseases.

**Supplemental Table 2**. Sensitivity of associations of evolutionary-concordance lifestyle score with all-cause mortality to removal of any one score component; the Iowa Women’s Health Study (n = 35,221), 1986 – 2012

|  |  |
| --- | --- |
|  | **Evolutionary-concordance lifestyle score**\* |
| **Score component removed:** | Smoke | Physical activity | BMI |
|  | HR (95% CI) | HR (95% CI) | HR (95% CI) |
| **Continuous** | 0.97 (0.96, 0.97) | 0.88 (0.88, 0.89) | 0.92 (0.92, 0.93) |
| **Quantiles** |  |  |  |
|  1 | 1.00 | 1.00 | 1.00 |
|  2 | 1.02 (0.98, 1.06) | 0.68 (0.65, 0.71) | 0.54 (0.52, 0.57) |
|  3 | 0.81 (0.77, 0.86) | 0.54 (0.52, 0.56) | 0.56 (0.54, 0.59) |
|  4 | 0.84 (0.81, 0.88) | 0.49 (0.47, 0.51) | 0.57 (0.53, 0.61) |
|  5 | 0.76 (0.72, 0.80) | N/A | 0.47 (0.45, 0.50) |
| *P for trend* | *<0.01* | *<0.01* | *<0.01* |

Abbreviations: BMI, body mass index; HR, hazards ratio; CI, confidence interval; N/A, not applicable.

\* HR from Cox proportional hazards models. Covariates included age (years; continuous), education (< high school, high school, > high school), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), chronic disease (yes/no), and evolutionary-concordant diet score (quintiles). Excluded component not included in the model.

**Supplemental Table 3.** Multivariable-adjusted associations of evolutionary-concordance diet and lifestyle and Mediterranean diet pattern scores with all-cause mortality in the Iowa Women’s Health Study (n = 35,221), after excluding patients who died within one or two years of follow up, 1986 – 2012

|  |  |  |  |
| --- | --- | --- | --- |
| Score variable | Evolutionary-concordance scores |  | Mediterranean Diet Score\* |
| **Diet**\* |  | **Lifestyle**† |  |  |
|  | **HR (95% CI)** |  | **HR (95% CI)** |  | **HR (95% CI)** |
| Excluding |  |  |  |  |  |  |  |  |
|  One year |  |  |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 |  | 1.00 |
|  2 | 0.99 (0.94, 1.03) |  | 0.67 (0.64, 0.71) |  | 0.94 (0.90, 0.98) |
|  3 | 0.97 (0.92, 1.01) |  | 0.69 (0.66, 0.72) |  | 0.92 (0.88, 0.96) |
|  4 | 0.96 (0.92, 1.01) |  | 0.61 (0.58, 0.63) |  | 0.89 (0.85, 0.94) |
|  5 | 0.96 (0.91, 1.00) |  | 0.52 (0.50, 0.55) |  | 0.83 (0.79, 0.87) |
| *P* *for trend* | *0.04* |  | *<0.01* |  | *<0.01* |
|  Two years |  |  |  |  |  |  |  |  |
|  1 | 1.00 |  | 1.00 |  | 1.00 |
|  2 | 0.98 (0.94, 1.03) |  | 0.67 (0.64, 0.71) |  | 0.94 (0.90, 0.98) |
|  3 | 0.97 (0.92, 1.01) |  | 0.69 (0.66, 0.72) |  | 0.92 (0.88, 0.96) |
|  4 | 0.96 (0.91, 1.01) |  | 0.61 (0.58, 0.63) |  | 0.89 (0.85, 0.93) |
|  5 | 0.96 (0.91, 1.01) |  | 0.52 (0.50, 0.55) |  | 0.82 (0.78, 0.87) |
| *P* *for trend* | *0.05* |  | *<0.01* |  | *<0.01* |

Abbreviations: HR, hazards ratio; CI, confidence interval.

\* For score construction, see text and Table 1. HRs from Cox proportional hazards models; covariates included age (years; continuous), smoking status (current, past, never smoker), education (< high school, high school, > high school), body mass index (weight [kg]/height [m]2; continuous), physical activity (low, medium, high), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), and chronic disease (yes/no).

† Includes smoking, physical activity, and body mass index; for score construction, see text. HRs from Cox proportional hazards models; covariates included age (years; continuous), education (< high school, high school, > high school), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), chronic disease (yes/no), and evolutionary-concordant diet score (quintiles).

**Supplemental Table 4.** Multivariable-adjusted association of an unweighted evolutionary-concordance lifestyle score with all-cause mortality in the Iowa Women’s Health Study (n = 35,221), 1986 – 2012

|  |  |
| --- | --- |
|  | **Evolutionary-concordance lifestyle score**\* |
|  | **HR (95% CI)** |
| **Continuous** | 0.91 (0.91, 0.92) |
| **Quintiles** |  |  |
|  1 | 1.00 |
|  2 | 0.70 (0.67, 0.72) |
|  3 | 0.63 (0.60, 0.65) |
|  4 | 0.55 (0.52, 0.57) |
|  5 | 0.48 (0.45, 0.51) |
|  *P for trend* | *<0.01* |

Abbreviations: HR, hazards ratio; CI, confidence interval.

\* Includes smoking, physical activity, and body mass index; for score construction, see text. HRs from Cox proportional hazards models; covariates included age (years; continuous), education (< high school, high school, > high school), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), chronic disease (yes/no), and evolutionary-concordant diet score (quintiles).

**Supplement Table 5.** Multivariable-adjusted association of an alternatively categorized (dichotomized components) Mediterranean diet pattern score with all-cause mortality in the Iowa Women’s Health Study (n = 35,221), 1986 – 2012

|  |  |  |
| --- | --- | --- |
|  |  | Mediterranean Diet Score\* |
|  |
|  |  | HR  | 95% CI |
| Continuous  |  | 0.98  | 0.97, 0.99 |
| Quintiles |  |  |  |
| 1 |  | 1.00 |  |
| 2 |  | 0.97  | 0.93, 1.01 |
| 3 |  | 0.93  | 0.89, 0.98 |
| 4 |  | 0.93  | 0.88, 0.97 |
| 5 |  | 0.89  | 0.85, 0.93 |
| *P for trend* |  | *<0.01* |  |

Abbreviations: HR, hazards ratio; CI, confidence interval.

\* For score construction, see text and Table 1; the Mediterranean diet score in this table differs from the one presented in all other manuscript and Supplement tables that include a Mediterranean diet score in that it was based on dichotomizing the component dietary intake categories (high vs. low, based on median intake) rather than on quintiles of intakes. HRs from Cox proportional hazards models; covariates included age (years; continuous), smoking status (current, past, never smoker), education (< high school, high school, > high school), body mass index (weight [kg]/height [m]2; continuous), physical activity (low, medium, high), total energy intake (kcal/day; continuous), hormone replacement therapy use (current, past, never), marital status (married, never married, widowed, divorced/separated), and chronic disease (yes/no).

**Supplemental Table 6**. Quintile medians of evolutionary-concordance and Mediterranean diet score components in the IWHS cohort (n = 35,221), 1986 – 2012, and the REGARDS cohort (n = 11,966\*), 2003 – 2007

|  |  |  |  |
| --- | --- | --- | --- |
|  | **IWHS** |  | **REGARDS** |
| **Characteristics**† | 1 | 3 | 5 |  | 1 | 3 | 5 |
| Vegetables | 11.5 | 23 | 43 |  | 6.5 | 19.7 | 52.6 |
| Fruits | 7 | 17 | 32 |  | 1.6 | 5.4 | 17 |
| Lean meats | 0.5 | 2 | 6 |  | 0.5 | 2.4 | 7.6 |
| Fish  | 0.5 | 1.5 | 4 |  | 0.4 | 1.5 | 5.1 |
| Nuts  | 0 | 0.5 | 3 |  | 0 | 0.5 | 5.1 |
| Monounsaturated/saturated fat ratio | 0.90 | 1.10 | 1.30 |  | 1.03 | 1.30 | 1.72 |
| Red and processed meats | 2 | 6 | 12 |  | 0.7 | 2.4 | 7.4 |
| Sodium (mg/day) | 1,256 | 2,084 | 3,182 |  | 1,024 | 1,900 | 3,390 |
| Dairy  | 5 | 15 | 31.5 |  | 0.8 | 5.1 | 15.5 |
| Grain and starches | 12 | 24 | 44 |  | 7.5 | 19.3 | 40.1 |
| Baked goods | 1 | 5 | 16 |  | 0.9 | 4 | 17 |
| Sugar sweetened beverages  | 0 | 0.5 | 4 |  | 0 | 0.6 | 11.8 |
| Alcohol (grams/day) | 0 | 0.9 | 12.1 |  | 0 | 0.7 | 23.1 |

Abbreviations: IWHS, Iowa Women’s Health Study; REGARDS, Reasons for Geographic and Racial Differences in Stroke

\* Only females in REGARDS were included in the table.

† The unit was servings per week unless specified.