

## ONLINE DATA SUPPLEMENT TO

---

### **Long-term anti-inflammatory diet in relation to improved breast cancer prognosis: a prospective cohort study**

---

**BY Kang Wang ET AL**

**NPJ Breast Cancer**

#### Contents

|                             |    |
|-----------------------------|----|
| Supplementary Table 1.....  | 2  |
| Supplementary Table 2.....  | 7  |
| Supplementary Table 3.....  | 8  |
| Supplementary Table 4.....  | 9  |
| Supplementary Table 5.....  | 10 |
| Supplementary Figure 1..... | 13 |
| Supplementary Figure 2..... | 14 |

**Supplementary Table 1 Baseline characteristics of 1,064 breast cancer cases in the PLCO Cancer Screening Trial by tertile of E-DII from food, but without supplement.**

|                                                                         | Post-diagnostic exposure to dietary inflammatory potential |                                 |                                | P                  |
|-------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------|--------------------------------|--------------------|
|                                                                         | E-DII Tertile 1<br>(-7.3, -4.0)                            | E-DII Tertile 2<br>(-4.0, -2.1) | E-DII Tertile 3<br>(-2.1, 5.6) |                    |
| <b>Number of cases</b>                                                  | <b>355</b>                                                 | <b>354</b>                      | <b>355</b>                     |                    |
|                                                                         | <b>Median (IQR)</b>                                        | <b>Median (IQR)</b>             | <b>Median (IQR)</b>            |                    |
| <b>Age at breast cancer diagnosis (years)</b>                           | 65 (61, 70)                                                | 66 (62, 70)                     | 65 (60, 70)                    | 0.11 <sup>a</sup>  |
| <b>Total energy intake (kcal/day)</b>                                   | 1,376 (1,101, 1,753)                                       | 1,418 (1,118, 1,766)            | 1,542 (1,150, 1,923)           | 0.01 <sup>a</sup>  |
| <b>Alcohol intake (g/day)</b>                                           | 0.81 (0, 5.0)                                              | 0.77 (0, 4.8)                   | 1.23 (0, 6.4)                  | 0.13 <sup>a</sup>  |
| <b>Years from breast cancer diagnosis to<br/>DHQ completion (years)</b> | 1.4 (0.3, 2.5)                                             | 1.2 (0.22, 2.2)                 | 1.3 (0.4, 2.1)                 | 0.42 <sup>a</sup>  |
| <b>Person-years of follow-up since<br/>breast cancer diagnosis</b>      | 15.0(11.1, 17.2)                                           | 14.6 (10.2, 17.0)               | 14.1 (10.3, 16.4)              | 0.05 <sup>a</sup>  |
|                                                                         | <b>N (%)<sup>b</sup></b>                                   | <b>N (%)<sup>b</sup></b>        | <b>N (%)<sup>b</sup></b>       |                    |
| <b>Trial arm</b>                                                        |                                                            |                                 |                                |                    |
| Intervention                                                            | 189 (53.2)                                                 | 182 (51.4)                      | 196 (55.2)                     | 0.60 <sup>b</sup>  |
| Control                                                                 | 166 (46.8)                                                 | 172 (48.6)                      | 159 (44.8)                     |                    |
| <b>Race/Ethnicity</b>                                                   |                                                            |                                 |                                |                    |
| White                                                                   | 311 (87.6)                                                 | 322 (91.0)                      | 337 (94.9)                     | 0.005 <sup>c</sup> |
| Black                                                                   | 12 (3.4)                                                   | 9 (2.5)                         | 12 (3.4)                       |                    |
| Hispanic                                                                | 3 (0.8)                                                    | 1 (0.3)                         | 3 (0.8)                        |                    |
| Asian                                                                   | 27 (7.6)                                                   | 16 (4.5)                        | 3 (0.8)                        |                    |
| Other <sup>d</sup>                                                      | 2 (0.6)                                                    | 6 (1.7)                         | 0 (0.0)                        |                    |
| <b>BMI (kg/m<sup>2</sup>)</b>                                           |                                                            |                                 |                                |                    |
| ≤ 18.5                                                                  | 2 (0.6)                                                    | 4 (1.1)                         | 1 (0.3)                        | 0.003 <sup>c</sup> |

|                                     |            |            |            |                     |
|-------------------------------------|------------|------------|------------|---------------------|
| 18.6-25                             | 181 (51.0) | 151 (42.7) | 134 (37.7) |                     |
| 26-30                               | 110 (31.0) | 127 (35.9) | 121 (34.1) |                     |
| 31-50                               | 62 (17.5)  | 72 (20.3)  | 99 (27.9)  |                     |
| <b>Marital status</b>               |            |            |            |                     |
| Single <sup>e</sup>                 | 17 (4.8)   | 18 (5.1)   | 9 (2.5)    | 0.64 <sup>b</sup>   |
| Married or living as married        | 254 (71.5) | 246 (69.5) | 259 (73.0) |                     |
| Divorced or separated               | 40 (11.3)  | 41 (11.6)  | 37 (10.4)  |                     |
| Widowed                             | 44 (12.4)  | 49 (13.8)  | 50 (14.1)  |                     |
| <b>Education level</b>              |            |            |            |                     |
| Less than high school               | 14 (3.9)   | 18 (5.1)   | 30 (8.5)   | <0.001 <sup>b</sup> |
| High school graduate or equivalent  | 59 (16.6)  | 79 (22.3)  | 100 (28.2) |                     |
| Post-high school education          | 33 (9.3)   | 40 (11.3)  | 42 (11.8)  |                     |
| College education or higher         | 249 (70.1) | 217 (61.3) | 183 (51.5) |                     |
| <b>Income level</b>                 |            |            |            |                     |
| <\$20,000                           | 56 (15.8)  | 50 (14.1)  | 64 (18.0)  | 0.27 <sup>c</sup>   |
| \$20,000-\$49,000                   | 145 (40.8) | 156 (44.1) | 162 (45.6) |                     |
| \$50,000-\$99,000                   | 121 (34.1) | 126 (35.6) | 101 (28.5) |                     |
| \$100,000-\$200,000                 | 27 (7.6)   | 21 (5.9)   | 24 (6.8)   |                     |
| >\$200,000                          | 6 (1.7)    | 1 (0.3)    | 4 (1.1)    |                     |
| <b>Smoking status</b>               |            |            |            |                     |
| Never smoked                        | 198 (55.8) | 197 (55.6) | 169 (47.6) | <0.001 <sup>b</sup> |
| Past smoker                         | 14 (3.9)   | 22 (6.2)   | 46 (13.0)  |                     |
| Current smoker                      | 143 (40.3) | 135 (38.1) | 140 (39.4) |                     |
| <b>Physical activity</b>            |            |            |            |                     |
| Active less than one time per month | 43 (12.1)  | 49 (13.8)  | 48 (13.8)  | 0.77 <sup>b</sup>   |
| Active at least one time per month  | 312 (87.9) | 305 (86.2) | 307 (86.5) |                     |

|                                        |            |            |            |                    |
|----------------------------------------|------------|------------|------------|--------------------|
| <b>Hormone therapy</b>                 |            |            |            |                    |
| Never used                             | 120 (33.8) | 117 (33.1) | 123 (34.6) | 0.78 <sup>b</sup>  |
| Former used                            | 218 (61.4) | 220 (62.1) | 221 (62.3) |                    |
| Current used                           | 17 (4.8)   | 17 (4.8)   | 11 (3.1)   |                    |
| <b>Birth control pills</b>             |            |            |            |                    |
| No                                     | 158 (44.5) | 168 (47.5) | 163 (45.9) | 0.73               |
| Yes                                    | 197 (55.5) | 186 (52.5) | 192 (54.1) |                    |
| <b>Aspirin use</b>                     |            |            |            |                    |
| None                                   | 103 (29.0) | 89 (25.1)  | 94 (26.5)  | 0.28 <sup>b</sup>  |
| < Once/week                            | 76 (21.4)  | 76 (21.5)  | 94 (26.5)  |                    |
| Once per week or more                  | 176 (49.6) | 189 (53.4) | 167 (47.0) |                    |
| <b>Number of living birth</b>          |            |            |            |                    |
| 0                                      | 34 (9.6)   | 41 (11.6)  | 39 (11.0)  | 0.005 <sup>b</sup> |
| 1-2                                    | 150 (42.3) | 102 (28.8) | 117 (33.0) |                    |
| ≥3                                     | 171 (48.2) | 211 (59.6) | 199 (56.1) |                    |
| <b>Breast feeding</b>                  |            |            |            |                    |
| None or never pregnant                 | 133 (37.5) | 150 (42.4) | 176 (49.6) | 0.04 <sup>b</sup>  |
| <6 months                              | 97 (27.3)  | 97 (27.4)  | 89 (25.1)  |                    |
| 6-11 months                            | 63 (17.7)  | 59 (16.7)  | 45 (12.7)  |                    |
| >12 months                             | 62 (17.5)  | 48 (13.6)  | 45 (12.7)  |                    |
| <b>Oophorectomy status</b>             |            |            |            |                    |
| Ovaries not removed                    |            |            |            | 0.62 <sup>b</sup>  |
| removed                                | 63 (17.7)  | 73 (20.6)  | 67 (18.9)  |                    |
| <b>Family history of breast cancer</b> |            |            |            |                    |
| No                                     | 281 (79.2) | 287 (81.1) | 282 (79.4) | 0.41 <sup>c</sup>  |
| Yes                                    | 73 (20.6)  | 63 (17.8)  | 72 (20.3)  |                    |

|                            |            |            |            |                   |
|----------------------------|------------|------------|------------|-------------------|
| Possible                   | 1 (0.3)    | 4 (1.1)    | 1 (0.3)    |                   |
| <b>History of diabetes</b> |            |            |            |                   |
| No                         | 328 (92.4) | 327 (92.4) | 335 (94.4) | 0.49 <sup>b</sup> |
| Yes                        | 27 (7.6)   | 27 (7.6)   | 20 (5.6)   |                   |
| <b>Stage</b>               |            |            |            |                   |
| In situ                    | 75 (21.1)  | 72 (20.3)  | 69 (19.4)  | 0.47 <sup>c</sup> |
| I                          | 190 (53.5) | 173 (48.9) | 172 (48.5) |                   |
| II                         | 83 (23.4)  | 96 (27.1)  | 104 (29.3) |                   |
| III                        | 7 (2.0)    | 13 (3.7)   | 10 (2.8)   |                   |
| <b>Nuclear grade</b>       |            |            |            |                   |
| I                          | 103 (29.0) | 95 (26.8)  | 119 (33.5) | 0.39 <sup>b</sup> |
| II                         | 153 (43.1) | 155 (43.8) | 146 (41.1) |                   |
| III                        | 99 (27.9)  | 104 (29.4) | 90 (25.4)  |                   |
| <b>ER status</b>           |            |            |            |                   |
| Positive                   | 297 (83.7) | 300 (84.7) | 303 (85.4) | 0.82 <sup>b</sup> |
| Negative                   | 58 (16.3)  | 54 (15.3)  | 52 (14.6)  |                   |
| <b>PR status</b>           |            |            |            |                   |
| Positive                   | 262 (73.8) | 262 (74.0) | 276 (77.7) | 0.39 <sup>b</sup> |
| Negative                   | 93 (16.2)  | 92 (26.0)  | 79 (22.3)  |                   |
| <b>Surgery</b>             |            |            |            |                   |
| Lumpectomy                 | 158 (44.5) | 148 (41.8) | 153 (43.1) | 0.91 <sup>b</sup> |
| Mastectomy                 | 152 (42.8) | 164 (46.3) | 156 (43.9) |                   |
| Others <sup>f</sup>        | 45 (12.7)  | 42 (11.9)  | 46 (13.0)  |                   |

<sup>a</sup> P value was calculated from Kruskal–Wallis test.

<sup>b</sup> P value was calculated from Chi-Square test.

<sup>c</sup> P value was calculated from Fisher's exact.

<sup>d</sup> Other race including Pacific Islander and American Indian.

<sup>e</sup> Single including never married, divorced, separated and widowed.

<sup>f</sup> Other surgery including biopsy only and other specify.

Abbreviations: E-DII, energy-adjusted dietary inflammatory index; IQR, interquartile range; DHQ, dietary history questionnaire; BMI, body mass index, BCS, breast conserving surgery; ER, estrogen receptor, PR, progesterone receptor, HER2, human epidermal growth factor receptor 2.

**Supplementary Table 2. Association between E-DII from food, without supplement and all-causes mortality risk among 1,064 breast cancer cases in the PLCO Cancer Screening Trial.**

| Tertile of E-DII score          | Death from any cause (n) | Person-years | Hazard ratio<br>(95% confidence interval) |                          |
|---------------------------------|--------------------------|--------------|-------------------------------------------|--------------------------|
|                                 |                          |              | Model <sup>a</sup>                        | Model <sup>b</sup>       |
| <b>Tertile 1 (-7.3, -4.0)</b>   | 87                       | 4,911        | 1.00 (reference)                          | 1.00 (reference)         |
| <b>Tertile 2 (-4.0, -2.1)</b>   | 111                      | 4,705        | <b>1.32 [1.00, 1.75]</b>                  | 1.25 [0.94, 1.67]        |
| <b>Tertile 3 (-2.1, 5.6)</b>    | 98                       | 4,691        | 1.25 [0.94, 1.67]                         | 1.15 [0.85, 1.56]        |
| <b>P<sub>trend</sub></b>        |                          |              | <b>0.01</b>                               | <b>0.12</b>              |
| <b>Per 1-unit DII increment</b> | 296                      | 14,307       | <b>1.07 [1.02, 1.14]</b>                  | <b>1.05 [0.99, 1.11]</b> |

<sup>a</sup> Adjusted for age of breast cancer diagnosis (continues) and total energy intake (continues, kcal/day).

<sup>b</sup> Stratified by age of breast cancer diagnosis ( $\leq 60$  years old,  $> 60$  years old), years from breast cancer diagnosis to DHQ completion ( $\leq 1$  year,  $> 1$  year), stage (0/I, II/III) due to PH assumption violation and adjusted for total energy intake (continues, kcal/day), body mass index (continues, kg/m<sup>2</sup>), trial arm (control, intervention), race (white, black, others), marital status (single, married, divorced or separated, widowed), income ( $< \$20,000$ ,  $\$20,000$ – $\$49,000$ ,  $\$50,000$ – $\$99,000$ ,  $\$100,000$ – $\$200,000$ ,  $> \$200,000$ ), educational level (less than high school, high school graduate or equivalent, post-high school education, college education or higher), smoking status (never smoked, past smoked, current smoked), hormone replacement therapy (never used, former used, current used), history of diabetes (no, yes), physical activity (active less than one time per month, active at least one time per month), estrogen receptor status (negative, positive) and progesterone receptor status (negative, positive).

**Supplementary Table 3. Association between E-DII from food, without supplement and breast cancer-specific mortality risk among 1,064 breast cancer cases in the PLCO Cancer Screening Trial.**

| Tertile of E-DII score          | Death from breast cancer (n) | Person-years | Sub-distribution hazard ratio (95% confidence interval) |                    |
|---------------------------------|------------------------------|--------------|---------------------------------------------------------|--------------------|
|                                 |                              |              | Model <sup>a</sup>                                      | Model <sup>b</sup> |
| <b>Tertile 1 (-7.8, -5.6)</b>   | 29                           | 4,911        | 1.00 (reference)                                        | 1.00 (reference)   |
| <b>Tertile 2 (-5.6, -4.1)</b>   | 36                           | 4,705        | 1.25 [0.76, 2.05]                                       | 1.05 [0.63, 1.75]  |
| <b>Tertile 3 (-4.1, 4.9)</b>    | 35                           | 4,691        | 1.20 [0.74, 1.95]                                       | 0.98 [0.59, 1.65]  |
| <b>P<sub>trend</sub></b>        |                              |              | 0.18                                                    | 0.75               |
| <b>Per 1-unit DII increment</b> | 100                          | 14,307       | 1.07 [0.97, 1.18]                                       | 1.02 [0.91, 1.13]  |

<sup>a</sup> Adjusted for age of breast cancer diagnosis (continues) and total energy intake (continues, kcal/day).

<sup>b</sup> Adjusted for age of breast cancer diagnosis (continues), years from breast cancer diagnosis to DHQ completion (continues), , total energy intake (continues, kcal/day), body mass index (continues, kg/m<sup>2</sup>), trial arm (control, intervention), race (white, black, others), marital status (single, married, divorced or separated, widowed), income(<\$20,000, \$20,000-\$49,000, \$50,000-\$99,000, \$100,000-\$200,000, <\$200,000), educational level (less than high school, high school graduate or equivalent, post-high school education, college education or higher), smoking status (never smoked, past smoked, current smoked), hormone replacement therapy (never used, former used, current used), history of diabetes (no, yes), physical activity (active less than one time per month, active at least one time per month), stage (0/I, II/III), estrogen receptor status (negative, positive), progesterone receptor status (negative, positive).



**Supplementary Table 4. Risk of all-causes mortality stratified by interval from diagnosis to DHQ completion of breast cancer survivors across tertiles of post-diagnosis E-DII from food plus supplement in the PLCO Cancer Screening Trial.**

|                                                       | <b>E-DII Tertile 1<br/>(-7.8, -5.6)</b> | <b>E-DII Tertile 2<br/>(-5.6, -4.1)</b> | <b>E-DII Tertile 3<br/>(-4.1, 4.9)</b> | <b>P<sub>trend</sub></b> | <b>P<sub>interaction</sub><sup>a</sup></b> |
|-------------------------------------------------------|-----------------------------------------|-----------------------------------------|----------------------------------------|--------------------------|--------------------------------------------|
| <b>1-2 years post-diagnosis</b>                       | 96                                      | 90                                      | 88                                     |                          | <b>0.87</b>                                |
| <b>Death from any cause (n)</b>                       | 16                                      | 24                                      | 24                                     |                          |                                            |
| <b>Age and energy-adjusted HR (95% CI)</b>            | 1.00 (reference)                        | 1.52 [0.80, 2.87]                       | <b>1.91 [1.01, 3.62]</b>               | <b>0.02</b>              |                                            |
| <b>Multivariable-adjusted HR (95% CI)<sup>b</sup></b> | 1.00 (reference)                        | 1.68 [0.86, 3.26]                       | <b>2.10 [1.02, 4.30]</b>               | <b>0.01</b>              |                                            |
| <b>&gt;2 years post-diagnosis</b>                     | 122                                     | 119                                     | 95                                     |                          |                                            |
| <b>Death from any cause (n)</b>                       | 34                                      | 33                                      | 37                                     |                          |                                            |
| <b>Age and energy-adjusted HR (95% CI)</b>            | 1.00 (reference)                        | 1.02 [0.63, 1.65]                       | <b>1.75 [1.09, 2.80]</b>               | <b>0.03</b>              |                                            |
| <b>Multivariable-adjusted HR (95% CI)<sup>b</sup></b> | 1.00 (reference)                        | 1.09 [0.66, 1.80]                       | <b>1.74 [1.04, 2.91]</b>               | 0.07                     |                                            |

<sup>a</sup>P<sub>interaction</sub> was calculated by adding the cross-product of quartile E-DII and the follow-up time (1-2 years and >2 years post-diagnosis) in the COX proportional hazards regression model.

<sup>4</sup> Stratified by age of breast cancer diagnosis (<=60 years old, >60 years old), years from breast cancer diagnosis to DHQ completion (<=1 year, >1 year), stage (0/I, II/III) due to PH assumption violation and adjusted for total energy intake (continues, kcal/day), body mass index (continues, kg/m<sup>2</sup>), trial arm (control, intervention), race (white, black, others), marital status (single, married, divorced or separated, widowed), income(<\$20,000, \$20,000-\$49,000, \$50,000-\$99,000, \$100,000-\$200,000, <\$200,000), educational level (less than high school, high school graduate or equivalent, post-high school education, college education or higher), smoking status (never smoked, past smoked, current smoked), hormone replacement therapy (never used, former used, current used), history of diabetes (no, yes), physical activity (active less than one time per month, active at least one time per month), estrogen receptor status (negative, positive) and progesterone receptor status (negative, positive).

**Supplementary Table5 Baseline characteristics of breast cancer cases in the PLCO Cancer Screening Trial by status of DHQ response.**

|                                                                     | Cohort with invalid DHQ response* | Cohort with valid DHQ response | P                   |
|---------------------------------------------------------------------|-----------------------------------|--------------------------------|---------------------|
| <b>Number of cases</b>                                              | <b>934</b>                        | <b>1,064</b>                   |                     |
|                                                                     | <b>Median (IQR)</b>               | <b>Median (IQR)</b>            |                     |
| <b>E-DII from food plus supplement</b>                              | -3.4 (-5.3, -0.92)                | -4.9 (-5.9, -3.6)              | <0.001 <sup>a</sup> |
| <b>Age at breast cancer diagnosis (years)</b>                       | 69 (64, 74)                       | 65 (61, 70)                    | <0.001 <sup>a</sup> |
| <b>Total energy intake (kcal/day)</b>                               | 1219.4<br>(722.7, 3730.3)         | 1435.1<br>(1119.5, 1820.9)     | 0.08 <sup>a</sup>   |
| <b>Alcohol intake (g/day)</b>                                       | 0.17 (0, 1.53)                    | 0.97 (0, 5.2)                  | <0.001 <sup>a</sup> |
| <b>Years from breast cancer diagnosis to DHQ completion (years)</b> | 1.4 (0.38, 2.7)                   | 1.3 (0.31, 2.3)                | 0.23 <sup>a</sup>   |
| <b>Person-years of follow-up since breast cancer diagnosis</b>      | 10.0 (6.8, 13.7)                  | 14.6 (10.5, 16.9)              | <0.001 <sup>a</sup> |
|                                                                     | <b>N (%)<sup>b</sup></b>          | <b>N (%)<sup>b</sup></b>       |                     |
| <b>Trial arm</b>                                                    |                                   |                                |                     |
| Intervention                                                        | 459 (49.1)                        | 567 (53.3)                     | 0.07 <sup>b</sup>   |
| Control                                                             | 475 (50.9)                        | 497 (46.7)                     |                     |
| <b>Race/Ethnicity</b>                                               |                                   |                                |                     |
| White                                                               | 774 (82.9)                        | 970 (91.2)                     | 0.005 <sup>c</sup>  |
| Black                                                               | 79 (8.5)                          | 33 (3.1)                       |                     |
| Hispanic                                                            | 22 (2.4)                          | 7 (0.7)                        |                     |
| Asian                                                               | 45 (4.8)                          | 46 (4.3)                       |                     |
| Other <sup>d</sup>                                                  | 14 (1.5)                          | 8 (0.8)                        |                     |
| <b>BMI (kg/m<sup>2</sup>)</b>                                       |                                   |                                |                     |
| ≤18.5                                                               | 11 (1.2)                          | 7 (0.7)                        | <0.001 <sup>c</sup> |
| 18.6-25                                                             | 317 (33.9)                        | 466 (43.8)                     |                     |
| 26-30                                                               | 336 (36.0)                        | 358 (33.6)                     |                     |
| 31-50                                                               | 270 (28.9)                        | 233 (21.9)                     |                     |
| <b>Marital status</b>                                               |                                   |                                |                     |
| Single <sup>e</sup>                                                 | 40 (4.3)                          | 44 (4.1)                       | <0.001 <sup>b</sup> |
| Married or living as married                                        | 578 (61.9)                        | 759 (71.3)                     |                     |
| Divorced or separated                                               | 167 (17.9)                        | 118 (11.1)                     |                     |
| Widowed                                                             | 149 (16.0)                        | 143 (13.4)                     |                     |
| <b>Education level</b>                                              |                                   |                                |                     |
| Less than high school                                               | 70 (7.5)                          | 62 (5.8)                       | 0.06 <sup>b</sup>   |
| High school graduate or equivalent                                  | 244 (26.1)                        | 238 (22.4)                     |                     |
| Post-high school education                                          | 100 (10.7)                        | 115 (10.8)                     |                     |

|                                        |            |            |                    |
|----------------------------------------|------------|------------|--------------------|
| College education or higher            | 520 (55.7) | 649 (61.0) |                    |
| <b>Income level</b>                    |            |            |                    |
| <\$20,000                              | 214 (22.9) | 170 (16.0) | 0.001 <sup>c</sup> |
| \$20,000-\$49,000                      | 401 (42.9) | 463 (43.5) |                    |
| \$50,000-\$99,000                      | 255 (27.3) | 348 (32.7) |                    |
| \$100,000-\$200,000                    | 52 (5.6)   | 72 (6.8)   |                    |
| <\$200,000                             | 12 (1.3)   | 11 (1.0)   |                    |
| <b>Smoking status</b>                  |            |            |                    |
| Never smoked                           | 496 (53.1) | 564 (53.0) | 0.02 <sup>b</sup>  |
| Past smoker                            | 105 (11.2) | 82 (7.7)   |                    |
| Current smoker                         | 333 (35.7) | 418 (39.3) |                    |
| <b>Physical activity</b>               |            |            |                    |
| Active less than one time per month    | 165 (17.7) | 140 (13.2) | 0.006 <sup>b</sup> |
| Active at least one time per month     | 769 (82.3) | 924 (86.8) |                    |
| <b>Hormone therapy</b>                 |            |            |                    |
| Never used                             | 333 (35.7) | 360 (33.8) | 0.03 <sup>b</sup>  |
| Former used                            | 540 (57.8) | 659 (61.9) |                    |
| Current used                           | 61 (6.5)   | 45 (4.2)   |                    |
| <b>Birth control pills</b>             |            |            |                    |
| No                                     | 463 (49.6) | 489 (46.0) | 0.12 <sup>b</sup>  |
| Yes                                    | 471 (50.4) | 575 (54.0) |                    |
| <b>Aspirin use</b>                     |            |            |                    |
| None                                   | 246 (26.3) | 286 (26.9) | 0.85 <sup>b</sup>  |
| < Once/week                            | 209 (22.4) | 246 (23.1) |                    |
| Once per week or more                  | 479 (51.3) | 532 (50.0) |                    |
| <b>Number of live babies delivered</b> |            |            |                    |
| 0                                      | 111 (11.9) | 114 (10.7) | 0.63 <sup>b</sup>  |
| 1-2                                    | 310 (33.2) | 369 (34.7) |                    |
| ≥3                                     | 513 (54.9) | 581 (54.6) |                    |
| <b>Breast feeding</b>                  |            |            |                    |
| None or never pregnant                 | 412 (44.1) | 459 (43.1) | 0.21 <sup>b</sup>  |
| <6 months                              | 266 (28.5) | 283 (26.6) |                    |
| 6-11 months                            | 116 (12.4) | 167 (15.7) |                    |
| >12 months                             | 140 (15.0) | 155 (14.6) |                    |
| <b>Oophorectomy status</b>             |            |            |                    |
| Ovaries not removed                    |            |            | 0.38 <sup>b</sup>  |
| removed                                | 163 (17.5) | 203 (19.1) |                    |
| <b>Family history of breast cancer</b> |            |            |                    |
| No                                     | 736 (78.8) | 850 (79.9) | 0.42 <sup>c</sup>  |
| Yes                                    | 188 (20.1) | 208 (19.5) |                    |

|                            |            |            |                   |
|----------------------------|------------|------------|-------------------|
| Possible                   | 10 (1.1)   | 6 (0.6)    |                   |
| <b>History of diabetes</b> |            |            |                   |
| No                         |            |            | 0.99 <sup>b</sup> |
| Yes                        | 65 (7.0)   | 74 (7.0)   |                   |
| <b>Stage</b>               |            |            |                   |
| In situ                    | 176 (18.8) | 216 (20.3) | 0.21 <sup>c</sup> |
| I                          | 464 (49.7) | 535 (50.3) |                   |
| II                         | 252 (27.0) | 283 (26.6) |                   |
| III                        | 42 (4.5)   | 30 (2.8)   |                   |
| <b>Nuclear grade</b>       |            |            |                   |
| I                          | 280 (30.0) | 317 (29.8) | 0.99 <sup>b</sup> |
| II                         | 397 (42.5) | 454 (42.7) |                   |
| III                        | 257 (27.5) | 293 (27.5) |                   |
| <b>ER status</b>           |            |            |                   |
| Positive                   | 796 (85.2) | 900 (84.6) | 0.74 <sup>b</sup> |
| Negative                   |            |            |                   |
| <b>PR status</b>           |            |            |                   |
| Positive                   | 687 (73.6) | 800 (75.2) | 0.43 <sup>b</sup> |
| Negative                   |            |            |                   |
| <b>Surgery</b>             |            |            |                   |
| Lumpectomy                 | 438 (46.9) | 459 (43.1) | 0.19 <sup>b</sup> |
| Mastectomy                 | 396 (42.4) | 472 (44.4) |                   |
| Others <sup>f</sup>        | 100 (10.7) | 133 (12.5) |                   |

\*There were 934 of 1,017 breast cancer patients who completed DHQ after breast cancer diagnosis, had invalid DQH response, and had I-III stage tumors.

<sup>a</sup> P value was calculated from Kruskal–Wallis test.

<sup>b</sup> P value was calculated from Chi-Square test.

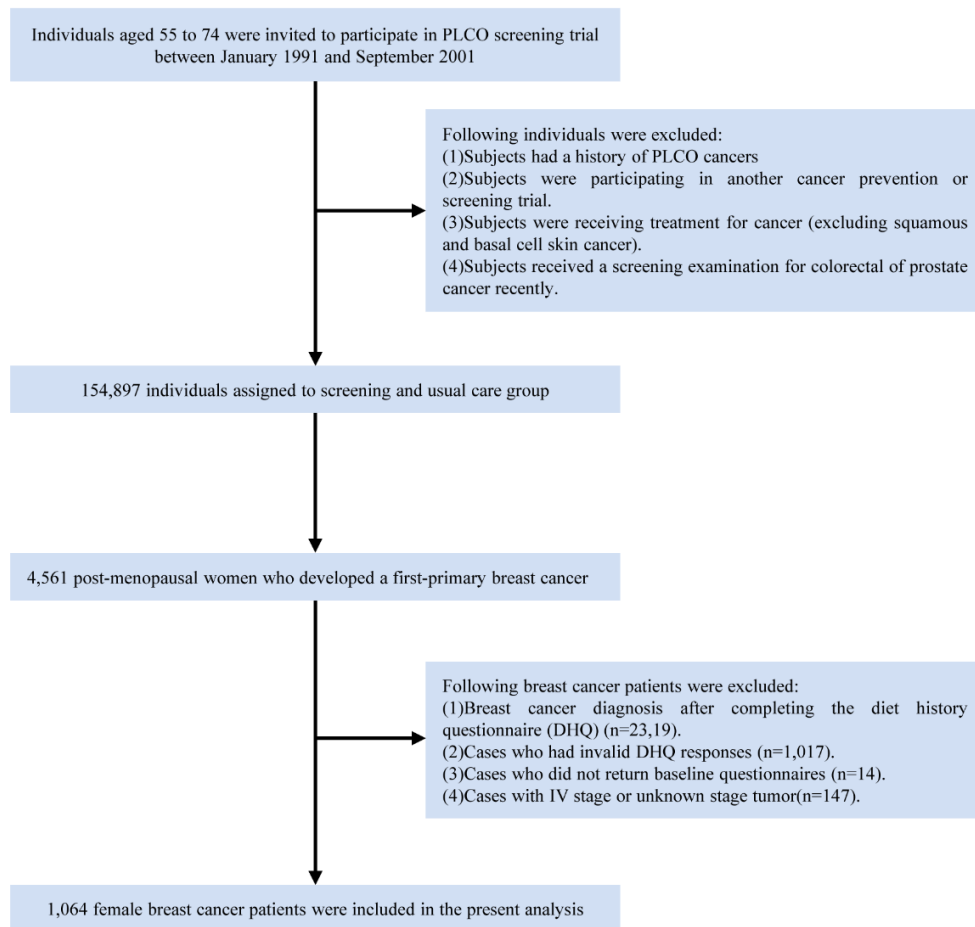
<sup>c</sup> P value was calculated from Fisher's exact.

<sup>d</sup> Other race including Pacific Islander and American Indian.

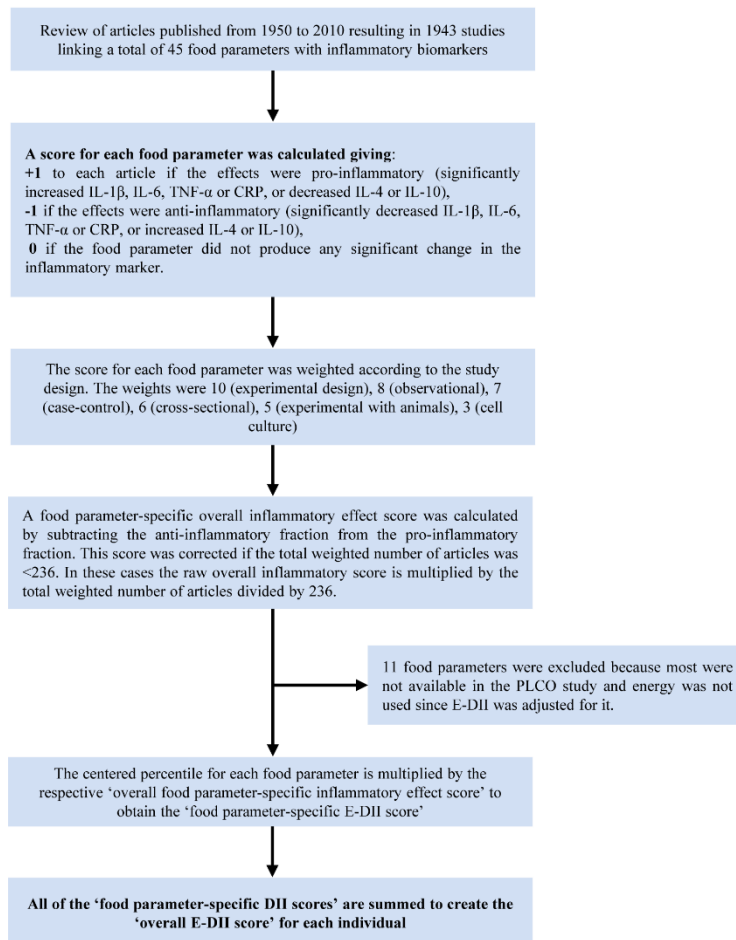
<sup>e</sup> Single including never married, divorced, separated and widowed.

<sup>f</sup> Other surgery including biopsy only and other specify.

Abbreviations: E-DII, energy-adjusted dietary inflammatory index; IQR, interquartile range; DHQ, dietary history questionnaire; BMI, body mass index; BCS, breast conserving surgery; ER, estrogen receptor, PR, progesterone receptor, HER2, human epidermal growth factor receptor 2.



**Supplementary Figure 1. The study flowchart for identifying eligible breast cancer patients.** PLCO, the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial; DHQ, diet history questionnaire.



**Supplementary Figure 2. Sequence of steps in creating the dietary inflammatory index (DII) in the PLCO study.**

PLCO, the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial.