**Supplementary Table 4.** Hazard ratios (HRs) and 95% confidence intervals (CIs) of melanoma by fat intake in the Nurses’ Health Study (NHS) and Health Professionals Follow-up Study (HPFS).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | ***P* trend** |
| **Total fat** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, % of energy | 26.0 | 29.8 | 32.3 | 34.8 | 38.8 |  |
| No. of cases | 158/380797 | 178/381344 | 153/381436 | 168/381486 | 137/381172 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.14 (0.92, 1.42) | 0.99 (0.79, 1.23) | 1.09 (0.88, 1.36) | 0.90 (0.71, 1.13) | 0.33 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.16 (0.94, 1.44) | 1.03 (0.82, 1.30) | 1.18 (0.94, 1.48) | 1.06 (0.83, 1.36) | 0.58 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, % of energy | 23.9 | 28.4 | 31.3 | 34.1 | 38.3 |  |
| No. of cases | 168/209031 | 151/209514 | 148/209445 | 127/209237 | 142/208665 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 0.91 (0.73, 1.13) | 0.90 (0.72, 1.13) | 0.78 (0.62, 0.99) | 0.88 (0.70, 1.10) | 0.10 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 0.92 (0.74, 1.15) | 0.95 (0.76, 1.19) | 0.85 (0.67, 1.08) | 1.03 (0.81, 1.32) | 0.88 |
| **Saturated fat** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, % of energy | 8.5 | 10.0 | 11.1 | 12.2 | 14.2 |  |
| No. of cases | 163/381252 | 178/381616 | 174/381490 | 144/381291 | 135/380585 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.11 (0.90, 1.37) | 1.09 (0.88, 1.35) | 1.09 (0.88, 1.35) | 0.86 (0.68, 1.09) | 0.07 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.13 (0.91, 1.40) | 1.15 (0.92, 1.43) | 0.99 (0.78, 1.25) | 1.03 (0.81, 1.32) | 0.87 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 1.11 (0.87, 1.40) | 1.09 (0.83, 1.42) | 0.91 (0.68, 1.23) | 0.96 (0.69, 1.34) | 0.50 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, % of energy | 7.2 | 9.1 | 10.4 | 11.6 | 13.6 |  |
| No. of cases | 176/209536 | 152/209671 | 147/209265 | 136/209117 | 125/208303 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 0.89 (0.71, 1.10) | 0.87 (0.70, 1.08) | 0.81 (0.65, 1.02) | 0.76 (0.60, 0.95) | 0.01 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 0.90 (0.72, 1.12) | 0.91 (0.73, 1.14) | 0.89 (0.70, 1.12) | 0.88 (0.69, 1.14) | 0.27 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 0.86 (0.67, 1.10) | 0.86 (0.64, 1.15) | 0.81 (0.59, 1.13) | 0.78 (0.54, 1.13) | 0.15 |
| **Monounsaturated fat** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, % of energy | 9.5 | 11.1 | 12.1 | 13.2 | 14.8 |  |
| No. of cases | 164/380525 | 166/381174 | 151/381482 | 178/381548 | 135/381506 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.03 (0.83, 1.27) | 0.94 (0.75, 1.17) | 1.11 (0.90, 1.38) | 0.85 (0.67, 1.07) | 0.31 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.05 (0.84, 1.30) | 0.97 (0.78, 1.22) | 1.20 (0.96, 1.50) | 0.98 (0.77, 1.25) | 0.77 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 1.00 (0.78, 1.28) | 0.92 (0.69, 1.22) | 1.14 (0.84, 1.55) | 0.93 (0.65, 1.33) | 0.86 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, % of energy | 9.0 | 10.9 | 12.1 | 13.3 | 15.1 |  |
| No. of cases | 161/208857 | 157/209360 | 140/209452 | 136/209269 | 142/208954 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 0.98 (0.79, 1.23) | 0.89 (0.71, 1.11) | 0.87 (0.69, 1.09) | 0.91 (0.72, 1.14) | 0.20 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.00 (0.80, 1.25) | 0.93 (0.73, 1.17) | 0.94 (0.74, 1.19) | 1.06 (0.83, 1.35) | 0.95 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 0.98 (0.75, 1.27) | 0.91 (0.67, 1.23) | 0.92 (0.66, 1.30) | 1.05 (0.71, 1.54) | 0.97 |
| **Cholesterol** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, mg/1000kcal | 106.2 | 128.8 | 144.9 | 162.7 | 199.2 |  |
| No. of cases | 158/381415 | 148/381634 | 158/381696 | 188/381246 | 142/380244 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 0.95 (0.76, 1.19) | 1.01 (0.81, 1.27) | 1.21 (0.98, 1.50) | 0.92 (0.73, 1.15) | 0.89 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 0.95 (0.76, 1.19) | 1.02 (0.82, 1.28) | 1.24 (1.00, 1.54) | 1.01 (0.80, 1.27) | 0.34 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 0.95 (0.75, 1.19) | 1.03 (0.82, 1.30) | 1.26 (1.00, 1.59) | 1.04 (0.80, 1.34) | 0.27 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, mg/1000kcal | 92.5 | 116.5 | 134.4 | 154.8 | 193.6 | 　 |
| No. of cases | 150/210173 | 151/210027 | 151/209694 | 149/208868 | 135/207129 | 　 |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.02 (0.82, 1.28) | 1.03 (0.82, 1.29) | 1.01 (0.81, 1.27) | 0.91 (0.72, 1.15) | 0.44 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.05 (0.84, 1.32) | 1.08 (0.86, 1.35) | 1.10 (0.87, 1.39) | 1.05 (0.82, 1.34) | 0.60 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 1.10 (0.87, 1.39) | 1.15 (0.90, 1.47) | 1.19 (0.93, 1.54) | 1.15 (0.87, 1.51) | 0.29 |
| **Polyunsaturated fat** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, % of energy | 4.6 | 5.4 | 6.0 | 6.7 | 7.8 |  |
| No. of cases | 158/380240 | 146/381297 | 159/381522 | 173/381559 | 158/381616 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 0.92 (0.74, 1.16) | 1.02 (0.82, 1.27) | 1.10 (0.89, 1.37) | 1.01 (0.81, 1.26) | 0.47 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 0.91 (0.72, 1.14) | 1.01 (0.81, 1.26) | 1.10 (0.89, 1.38) | 1.05 (0.84, 1.31) | 0.27 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 0.90 (0.71, 1.13) | 0.99 (0.78, 1.26) | 1.09 (0.86, 1.39) | 1.05 (0.81, 1.37) | 0.32 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, % of energy | 4.4 | 5.2 | 5.8 | 6.4 | 7.5 |  |
| No. of cases | 124/207935 | 159/209418 | 150/209598 | 152/209785 | 151/209156 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.30 (1.03, 1.64) | 1.23 (0.97, 1.56) | 1.25 (0.98, 1.58) | 1.23 (0.97, 1.56) | 0.16 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.29 (1.02, 1.64) | 1.23 (0.97, 1.56) | 1.26 (0.99, 1.61) | 1.28 (1.01, 1.63) | 0.08 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 1.32 (1.04, 1.68) | 1.27 (0.98, 1.64) | 1.31 (1.00, 1.70) | 1.32 (0.99, 1.75) | 0.13 |
| **Omega-6 fat** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, % of energy | 4.0 | 4.8 | 5.3 | 6.0 | 7.1 |  |
| No. of cases | 163/380305 | 144/381245 | 163/381513 | 147/381740 | 177/381432 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 0.89 (0.71, 1.12) | 1.02 (0.82, 1.26) | 0.92 (0.73, 1.15) | 1.11 (0.89, 1.37) | 0.30 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 0.88 (0.70, 1.10) | 1.01 (0.81, 1.26) | 0.92 (0.73, 1.15) | 1.16 (0.93, 1.45) | 0.13 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 0.86 (0.68, 1.09) | 0.97 (0.75, 1.24) | 0.86 (0.65, 1.13) | 1.06 (0.78, 1.43) | 0.64 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, % of energy | 3.7 | 4.6 | 5.1 | 5.8 | 6.9 |  |
| No. of cases | 126/207562 | 156/209305 | 149/209718 | 156/209902 | 149/209404 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.26 (0.99, 1.59) | 1.21 (0.96, 1.54) | 1.28 (1.01, 1.61) | 1.21 (0.96, 1.54) | 0.19 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.25 (0.98, 1.58) | 1.20 (0.95, 1.53) | 1.27 (1.00, 1.61) | 1.25 (0.97, 1.59) | 0.13 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 1.27 (1.00, 1.63) | 1.25 (0.96, 1.63) | 1.33 (1.00, 1.75) | 1.31 (0.96, 1.80) | 0.15 |
| **Omega-3 fat** |  |  |  |  |  |  |
| **NHS** |  |  |  |  |  |  |
| Median intake, % of energy | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |  |
| No. of cases | 145/380438 | 146/381332 | 144/381574 | 172/381461 | 187/381429 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.01 (0.80, 1.27) | 0.99 (0.79, 1.25) | 1.18 (0.95, 1.48) | 1.28 (1.03, 1.59) | 0.01 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 0.96 (0.76, 1.21) | 0.94 (0.74, 1.18) | 1.10 (0.88, 1.37) | 1.21 (0.97, 1.51) | 0.03 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 0.97 (0.76, 1.23) | 0.94 (0.73, 1.21) | 1.09 (0.85, 1.41) | 1.16 (0.88, 1.53) | 0.18 |
| **HPFS** |  |  |  |  |  |  |
| Median intake, % of energy | 0.5 | 0.6 | 0.6 | 0.7 | 0.9 |  |
| No. of cases | 127/208256 | 152/209464 | 141/209559 | 167/209564 | 149/209050 |  |
| Age-adjusted HR (95% CI) | 1.00 (referent) | 1.19 (0.94, 1.51) | 1.11 (0.87, 1.41) | 1.30 (1.03, 1.64) | 1.15 (0.91, 1.46) | 0.24 |
| Multivariable-adjusted HR1a (95% CI) | 1.00 (referent) | 1.15 (0.91, 1.46) | 1.06 (0.83, 1.35) | 1.25 (0.99, 1.58) | 1.11 (0.87, 1.42) | 0.35 |
| Multivariable-adjusted HR2b (95% CI) | 1.00 (referent) | 1.09 (0.85, 1.38) | 0.97 (0.75, 1.25) | 1.11 (0.87, 1.43) | 0.96 (0.73, 1.26) | 0.76 |

aMultivariable model 1 was jointly stratified by age in months and calendar year of the questionnaire cycle and adjusted for family history of melanoma, natural hair color, number of arm moles, sunburn susceptibility as a child/adolescent, number of lifetime blistering sunburns, cumulative UV flux since baseline, body mass index, physical activity, smoking status, incident SCC, incident BCC, personal history of non-skin cancer, intakes of total energy, alcohol, caffeine and citrus fruits. Among women analyses were additionally adjusted for menopausal status and postmenopausal hormone use.

bMultivariable model 2 was adjusted for the same covariates as multivariable model 1 and for other fats in quintiles simultaneously. Saturated, polyunsaturated, and monounsaturated fats and cholesterol were adjusted for each other. Omega-6 fat and omega-3 fat were adjusted for each other, as well as adjustment for saturated, monounsaturated fats, and for cholesterol.