**Supplementary material.**

**Supplemental Table 1. Associations\* between quintiles of dairy variables and risk of colorectal, colon and rectal cancers.**

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| --- | --- | --- | --- | --- |
| **Dairy nutrients**† | **Median intake of quintiles‡** | **Colorectal Cancer** | **Colon Cancer** | **Rectal Cancer** |
| **HR(95%CI)** | **HR(95%CI)** | **HR(95%CI)** |
| Total Dairy | Q1: 27·30 | 1·00 | 1·00 | 1·00 |
|  | Q2: 76·20 | 0·86 (0·64, 1·14) | 0·85 (0·62, 1·18) | 0·87 (0·48, 1·59) |
| (kcal/day) | Q3: 136·80 | 0·71 (0·49, 1·01) | 0·72 (0·49, 1·08) | 0·66 (0·33, 1·31) |
|  | Q4: 211·00 | 0·81 (0·59, 1·13) | 0·84 (0·57, 1·23) | 0·73 (0·38, 1·42) |
|  | Q5: 339·80 | 0·80 (0·57, 1·12) | 0·82 (0·57, 1·20) | 0·73 (0·35, 1·55) |
| Total Dairy  (g/day) | Q1: 9·90 | 1·00 | 1·00 | 1·00 |
| Q2: 47·40 | 0·80 (0·59, 1·08) | 0·82 (0·58, 1·16) | 0·75 (0·42, 1·34) |
| Q3: 111·10 | 0·80 (0·58, 1·10) | 0·87 (0·61, 1·24) | 0·58 (0·28, 1·23) |
| Q4: 214·40 | 0·81 (0·59, 1·11) | 0·83 (0·58, 1·18) | 0·76 (0·39, 1·49) |
| Q5: 414·50 | 0·73 (0·53, 1·00) | 0·75 (0·52, 1·09) | 0·66 (0·33, 1·31) |
| Dairy Protein  (g/day) | Q1: 1·00 | 1·00 | 1·00 | 1·00 |
| Q2: 3·30 | 0·99 (0·74, 1·33) | 1·02 (0·72, 1·45) | 0·94 (0·54, 1·64) |
| Q3: 6·60 | 0·84 (0·61, 1·15) | 0·92 (0·64, 1·31) | 0·64 (0·33, 1·22) |
| Q4: 11·20 | 0·77 (0·55, 1·06) | 0·83 (0·57, 1·20) | 0·59 (0·28, 1·24) |
| Q5: 19·70 | 0·84 (0·61, 1·16) | 0·88 (0·61, 1·27) | 0·74 (0·37, 1·48) |
| Dairy Fat  (g/day) | Q1: 1·90 | 1·00 | 1·00 | 1·00 |
| Q2: 4·90 | 0·81 (0·60, 1·11) | 0·80 (0·56, 1·13) | 0·87 (0·47, 1·62) |
| Q3: 8·30 | 0·93 (0·69, 1·26) | 1·04 (0·74, 1·46) | 0·63 (0·32, 1·23) |
| Q4: 12·50 | 0·86 (0·62, 1·19) | 0·91 (0·63, 1·33) | 0·70 (0·35, 1·41) |
| Q5: 20·50 | 0·86 (0·61, 1·21) | 0·94 (0·64, 1·38) | 0·66 (0·31, 1·41) |
| Dairy Carbohydrate  (g/day) | Q1: 1·10 | 1·00 | 1·00 | 1·00 |
| Q2: 2·80 | 0·90 (0·67, 1·21) | 0·94 (0·68, 1·31) | 0·80 (0·42, 1·52) |
| Q3: 6·10 | 0·87 (0·62, 1·21) | 0·87 (0·60, 1·26) | 0·87 (0·45, 1·70) |
| Q4: 12·00 | 0·97 (0·72, 1·31) | 1·03 (0·74, 1·45) | 0·77 (0·40, 1·50) |
| Q5: 24·40 | 0·71 (0·52, 0·98) | 0·72 (0·49, 1·04) | 0·71 (0·36, 1·41) |

Abbreviations: HR, Hazard Ratio;

\* Adjusted by supplemental calcium, non-dairy calcium, fiber, unprocessed red meat, processed red meat, fish, poultry, gender, race, BMI, education, alcohol consumption, cigarette smoking history, diabetes, use of aspirin, use of statin, physical activity, family history of colorectal cancer, history of polyps, screening for colorectal cancer.

†Dairy nutrient exposures assessed individually in regression models.

‡ Except for regression calibration analyses quintiles are from food frequency questionnaire data.

§ Units are kcal/d and quintiles are those for repeated recalls, as is appropriate for the RC.

**Supplemental Table 2. Associations\* between quintiles of intakes of dairy foods and risks of colorectal, colon and rectal cancers.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dairy Foods**† | **Median intake of extreme quintiles‡ (g/d)** | **Colorectal Cancer** | **Colon Cancer** | **Rectal Cancer** |
| **HR(95%CI)** | **HR(95%CI)** | **HR(95%CI)** |
| Cheese‡ | Q1: 0·10 | 1·00 | 1·00 | 1·00 |
| Q2: 3·80 | 0·83 (0·61, 1·13) | 0·77 (0·54, 1·09) | 1·06 (0·58, 1·91) |
| Q3: 7·50 | 0·86 (0·62, 1·18) | 0·88 (0·61, 1·25) | 0·78 (0·35, 1·75) |
| Q4: 13·00 | 0·83 (0·57, 1·21) | 0·83 (0·56, 1·25) | 0·83 (0·39, 1·77) |
| Q5: 24·80 | 0·94 (0·66, 1·34) | 0·97 (0·65, 1·45) | 0·85 (0·38, 1·89) |
| Cottage Cheese | Q1: 0·00 | 1·00 | 1·00 | 1·00 |
| Q2: 5·50 | 0·88 (0·63, 1·22) | 0·76 (0·51, 1·12) | 1·36 (0·73, 2·52) |
| Q3: 7·90 | 0·95 (0·69, 1·31) | 0·95 (0·66, 1·36) | 0·92 (0·44, 1·94) |
| Q4: 14·10 | 0·86 (0·62, 1·19) | 0·77 (0·52, 1·13) | 1·21 (0·64, 2·32) |
| Q5: 46·50 | 1·14 (0·84, 1·55) | 1·15 (0·81, 1·63) | 0·99 (0·49, 2·00) |
| Milk | Q1: 5·20 | 1·00 | 1·00 | 1·00 |
| Q2: 29·70 | 0·85 (0·62, 1·16) | 0·88 (0·61, 1·26) | 0·78 (0·41, 1·47) |
| Q3: 82·90 | 0·75 (0·52, 1·08) | 0·80 (0·54, 1·20) | 0·59 (0·25, 1·38) |
| Q4: 181·70 | 0·78 (0·53, 1·13) | 0·79 (0·51, 1·21) | 0·75 (0·33, 1·74) |
| Q5: 378·00 | 0·61 (0·42, 0·90) | 0·63 (0·41, 0·98) | 0·55 (0·24, 1·25) |
| Yogurt | Q1: 0·00 | 1·00 | 1·00 | 1·00 |
| Q2: 7·10 | 1·13 (0·85, 1·50) | 1·01 (0·72, 1·43) | 1·58 (0·87, 2·85) |
| Q3: 16·10 | 1·21 (0·90, 1·64) | 1·21 (0·85, 1·71) | 1·23 (0·64, 2·38) |
| Q4: 32·90 | 1·28 (0·92, 1·79) | 1·36 (0·95, 1·95) | 0·95 (0·43, 2·13) |
| Q5: 105·40 | 1·39 (0·99, 1·94) | 1·30 (0·89, 1·91) | 1·74 (0·85, 3·53) |

Abbreviations: HR, Hazard Ratio; RC, Regression Calibration

\* Adjusted by supplemental calcium, non-dairy calcium, fiber, unprocessed red meat, processed red meat, fish, poultry, gender, race, BMI, education, alcohol consumption, cigarette smoking history, diabetes, use of aspirin, use of statin, physical activity, family history of colorectal cancer, history of polyps, screening for colorectal cancer.

†Exposures adjusted for each other.

‡Excludes cottage cheese

**Supplemental Table 3. Associations between quintiles of total calcium intake and various sources of calcium, with risks of colorectal, colon and rectal cancers.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Calcium** | **Extreme quintile\* of intake (mg/d)** | **Colorectal Cancer** | **Colon Cancer** | **Rectal Cancer** |
| **HR(95%CI)** | **HR(95%CI)** | **HR(95%CI)** |
| Total Calcium† | Q1: 587·00 | 1·00 | 1·00 | 1·00 |
| Q2: 787·00 | 0·89 (0·67, 1·17) | 0·84 (0·61, 1·16) | 1·07 (0·59, 1·93) |
| Q3: 1,020·00 | 0·77 (0·56, 1·06) | 0·71 (0·49, 1·04) | 0·96 (0·53, 1·76) |
| Q4: 1,410·00 | 0·75 (0·56, 1·01) | 0·67 (0·48, 0·94) | 1·07 (0·60, 1·94) |
| Q5: 1,999·00 | 0·73 (0·54, 0·98) | 0·70 (0·50, 1·00) | 0·75 (0·38, 1·50) |
| Diet Calcium‡ | Q1: 530·00 | 1·00 | 1·00 | 1·00 |
| Q2: 663·00 | 0·88 (0·66, 1·19) | 0·89 (0·64, 1·25) | 0·82 (0·43, 1·57) |
| Q3: 775·00 | 0·97 (0·71, 1·33) | 0·86 (0·60, 1·25) | 1·40 (0·78, 2·53) |
| Q4: 913·00 | 0·89 (0·65, 1·22) | 0·82 (0·58, 1·17) | 1·13 (0·59, 2·18) |
| Q5:1,196·00 | 0·79 (0·56, 1·10) | 0·64 (0·43, 0·96) | 1·42 (0·75, 2·67) |
| Dairy  Calcium§ | Q1: 32·00 | 1·00 | 1·00 | 1·00 |
| Q2: 91·00 | 0·91 (0·68, 1·22) | 0·93 (0·66, 1·30) | 0·88 (0·47, 1·64) |
| Q3: 184·00 | 0·84 (0·62, 1·17) | 0·89 (0·63, 1·27) | 0·71 (0·35, 1·42) |
| Q4: 323·00 | 0·83 (0·62, 1·14) | 0·88 (0·62, 1·26) | 0·67 (0·34, 1·35) |
| Q5: 590·00 | 0·79 (0·57, 1·09) | 0·83 (0·57, 1·20) | 0·69 (0·35, 1·37) |
| Supplemental Calcium‡ | Q1: 0·00 | 1·00 | 1·00 | 1·00 |
| Q2: 137·00 | 0·82 (0·62, 1·09) | 0·82 (0·59, 1·13) | 0·84 (0·47, 1·48) |
| Q3: 400·00 | 0·80 (0·60, 1·06) | 0·85 (0·62, 1·17) | 0·61 (0·32, 1·17) |
| Q4: 764·00 | 0·76 (0·57, 1·02) | 0·77 (0·55, 1·07) | 0·74 (0·40, 1·37) |
| Q5: 1,193·00 | 0·87 (0·66, 1·14) | 0·91 (0·67, 1·24) | 0·71 (0·38, 1·34) |
| Non-Dairy | Q1: 328·00 | 1·00 | 1·00 | 1·00 |
| Calcium§ | Q2: 425·00 | 0·95 (0·70, 1·29) | 0·91 (0·65, 1·27) | 1·07 (0·52, 2·17) |
|  | Q3: 514·00 | 0·82 (0·59, 1·15) | 0·74 (0·50, 1·08) | 1·22 (0·56, 2·62) |
|  | Q4: 635·00 | 0·72 (0·51, 1·02) | 0·59 (0·39, 0·88) | 1·41 (0·66, 3·03) |
|  | Q5: 869·00 | 0·75 (0·52, 1·09) | 0·51 (0·40, 0·93) | 1·52 (0·70, 3·30) |

\*Extreme quintiles are from food frequency data

†Model 1: Total calcium, dairy kcals, fiber, unprocessed red meat, processed red meat, fish, poultry, gender, race, BMI, education, alcohol consumption, cigarette smoking history, diabetes, use of aspirin, use of statin, physical activity, family history of colorectal cancer, history of polyps, screening for colorectal cancer.

‡ Model 2: Calcium from diet and Calcium from supplements replace total calcium as separate variables. Other covariates identical to Model 1.

§ Model 3: Calcium from dairy, non-dairy calcium and calcium from supplements are the three calcium variables, and dairy kcals is omitted. Other covariates are identical to Model 1.

‖ RC –Regression calibration. Quintiles are for the repeated dietary recall data as is appropriate for the RC.