**Table 1.** Characteristics of included studies on circulating 25(OH)D and pancreatic cancer incidence.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First author**  **(Year)** | **Study** type | **Geographic region** | **Sex** | **A**ge (years, mean or median) | **Cases/**  **participants** | **C**irculating 25(OH)D status | **M**easurement of 25(OH)D | **25(OH)D**  **(highest vs. lowest)** | **OR/RR/HR**  **(95% CI)** | **Adjust**ed variables |
|
| Stolzenberg-Solomon (2006) | Case-control | Europe | M | 58 | 200/600 | Baseline fasting 25(OH)D (D2 and D3) status | RIA | > 65.5 vs. ≤ 32.0  (nmol/L) | 2.92 (1.56-5.48) | Years smoked, number of cigarettes smoked per day, occupational physical activity, education, serum retinol |
|
| Stolzenberg-Solomon (2010) | Case-control | Europe, North America, and Oceania | M, F | 62 | 952/2,285 | Circulating 25(OH)D | DiaSorin Liaison 25(OH)D Total Assay | > 100.0 vs. ≤ 25.0  (nmol/L) | 2.24 (1.22-4.12) | BMI, smoking, diabetes status |
|
| van Duijnhoven (2018) | Case-control | Europe | M, F | EPIC: 57.7  HUNT2: 68.0 | 738/1,476 | 25(OH)D2 and 25(OH)D3 | LC/MS | > 77.2 vs. ≤ 39.1  (nmol/L) | 1.40 (0.96-2.04) | BMI, smoking habits |
|
| Weinstein (2012) | Case-control | Europe | M | 58 | 234/468 | Serum 25(OH)D | RIA | > 61.8 vs. ≤ 29.0  (nmol/L) | 1.81 (0.97-3.37) | Age, date of blood collection, BMI, smoking, history of diabetes, occupational physical activity, education, ethanol intake |
|
| Stolzenberg-Solomon (2009) | Case-control | America | M, F | 66 | 184/552 | Baseline serum 25(OH)D | RIA | > 82.3 vs. ≤ 45.9  (nmol/L) | 1.45 (0.66-3.15) | Age, race, sex, and date of blood draw based on 2-mo blocks |
|
| Piper  （2015） | Case-control | America | M, F | 65 | 295/882 | Baseline serum 25(OH)D | Chemiluminescence immunoassay | ≥ 100.0 vs. < 25.0  (nmol/L) | 3.23 (1.24-8.44) | Age, race-ethnicity, sex, and date of blood draw based on 2-mo blocks, smoking status and self-reported diabetes |
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| Wolpin (2012) | Case-control | America | M, F | 60.8 | 451/1,618 | Plasma 25(OH)D | The 25(OH)D Enzyme Immunoassay Kit | > 81.1 vs. ≤ 45.6  (nmol/L) | 0.70 (0.51-0.98) | Age, sex, BMI, smoking status, history of diabetes mellitus, multivitamin use, month of blood draw |
|
| Bao  (2010) | Case-control | America | M, F | NHS:56.5  HPFS:57.5 | 575/118,597 | Plasma 25(OH)D | DiaSorin Liaison 25(OH)D Total Assay | (31.2-38.6) vs. (7.3-25.2)  (ng/ml) | 0.66 (0.46-0.96) | Age, sex, race, height, BMI, physical activity, cigarette smoking, diabetes |
|
| Giovannucci  (2006) | Case-control | America | M | 54.1 | 170/51,529 | Plasma 25(OH)D | RIA | >52.8 vs. ≤25.0  (nmol/L) | 0.49 (0.28-0.86) | Age, height, smoking history, and intakes of total calories, alcohol, red meat, calcium, retinol, and total fruits and vegetables |
|
| Lindelöf (2012) | Case-control | Europe | M, F | 70 | 42/283 | Serum 25(OH)D | RIA | Sufficient vs. Insufficient | 1.00 (0.67-1.50) | Age, level of income, occupation, place of living |
|
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25(OH)D: 25-hydroxyvitamin D, OR: odds ratio, RR: risk ratio, HR: hazard ratio, CI: confidence interval, M: male, F: female, RIA: radioimmunoassay, EPIC: European Prospective Investigation into Nutrition and Cancer, HUNT2: The Nord-Trondelag Health Study 2, LC/MS: Isotope-dilution liquid chromatography tandem-mass spectrometry, HPFS: The Health Professionals Follow-Up Study, NHS: The Nurses’ Health Study, BMI: body mass index.