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Supplemental Table 1. Search strategy in PubMed

1. fruits
2. vegetables
3. fruit
4. vegetable
5. berry
6. berries
7. strawberries
8. blueberries
9. citrus
10. "citrus fruits"
11. orange
12. apples
13. pears
14. banana
15. cruciferae
16. "cruciferous vegetables"
17. broccoli
18. cauliflower
19. cabbages
20. "allium vegetables"
21. onion
22. garlic
23. tomato
24. tomatoes
25. potato
26. "french fries"
27. juice
28. food
29. "food groups"
30. (1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29)
31. diabetes
32. "case-control"
33. cohort
34. cohorts
35. prospective
36. longitudinal
37. retrospective
38. "follow-up"
39. "cross-sectional"
40. "population-based"
41. "relative risk"
42. "odds ratio"
43. "hazard ratio"
44. "incidence rate ratio"
45. (32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44)
46. (30 AND 31 AND 45)

Supplemental Table 2. List of excluded studies and exclusion reason

Exclusion reason	Reference number
Abstract	(1-4)
Case-control study	(5-8)
Commentary	(9)
Cross-sectional study	(10-55)
Diabetes mortality	(56)
Dietary pattern, dietary index	(57-59)
Duplicate	(60-70)
Impaired glucose tolerance population	(71)
Meta-analysis	(72-88)
No risk estimates	(89-91)
Not original data	(92;93)
Not relevant data	(94-195)
Not relevant exposure	(196-424)
Not relevant outcome	(425-477)
Only one study on exposure	(478;479)
Patient population	(480)
Protocol	(481-483)
Review	(484-517)
Substitution of juice with water	(518)
Unadjusted risk estimates	(519)
Unspecific exposure (plant foods)	(520)

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Supplemental Table 3. Serving sizes

Exposure	Serving size (g/d) ^a	Serving size (g/d) ^b
Main exposures		
Fruit and vegetables		
Fruits	-	80
Vegetables	-	80
Subtypes of fruit		
Apples	138	-
Apples and pears	138	-
Bananas	114	-
Berries	-	75
Blueberries	-	70
Cantaloupe	134	-
Citrus fruits	-	110
Fruit drinks	-	250
Fruit juice	-	250
100% fruit juice	-	250
Grapefruit	120	-
Grapes and raisins	-	49
Oranges	131	-
Peaches, plums and apricots	87	-
Prunes	-	85
Strawberries	75	-
Watermelon	-	286
Subtypes of vegetables		
Allium vegetables	-	160
Boiled potato	-	202
Broccoli	78	-
Brussel sprouts	78	-
Cabbage	68	-
Cauliflower	62	-
Cruciferous vegetables	-	72
Green leafy vegetables	-	73
Kale, mustard and chard greens	-	73
Mushrooms	-	30
Potatoes	202	-
Tomatoes	122	-
Yellow vegetables	-	93

^a Serving sizes retrieved from Lee et al. (2009)^b Estimated values based on Lee et al. (2009)

Lee, J. E., Mannisto, S., Spiegelman, D., Hunter, D. J., Bernstein, L., van den Brandt, P. A., . . . Smith-Warner, S. A. (2009). Intakes of fruit, vegetables, and carotenoids and renal cell cancer risk: a pooled analysis of 13 prospective studies. *Cancer Epidemiol Biomarkers Prev*, 18(6), 1730-1739. doi:10.1158/1055-9965.epi-09-0045

Supplemental Table 4. Cohort studies of fruit and vegetables and type 2 diabetes

Author, publication year, country	Study name or description	Follow-up period	Study size, gender, age, number of cases	Dietary assessment	Outcome assessment	Exposure	Quantity	RR (95% CI)	Adjustment for confounders
Ford ES et al, 2000, USA	NHANES I Epidemiologic Follow-Up Study	1971-1975 to 1992-1993, 15.8 years follow-up	9665 participants, age 25-74 years, 1018 cases	Single 24-hour dietary recall	Self-report, hospitalization record, death certificate	Fruit and vegetable (total) Fruit and vegetable (men) Fruit and vegetable (women)	0 serv/d 1-4 ≥5 0 serv/d 1-4 ≥5 0 serv/d 1-4 ≥5	1.00 1.01 (0.78, 1.29) 0.79 (0.59, 1.06) 1.00 1.23 (0.76, 1.99) 1.14 (0.67, 1.93) 1.00 0.85 (0.62, 1.16) 0.61 (0.42, 0.88)	Age, sex, smoking, systolic blood pressure, cholesterol concentration, use of antihypertensive medication, recreational exercise, nonrecreational activity, alcohol use, BMI, education
Meyer KA et al, 2000, USA	Iowa Women's Health Study (IWHS)	1986-1992, 6 years follow-up	35 988 women, age 55-69 years, 1141 cases	Validated FFQ, 127 items	Self-reported, validated by physician/medical records	Total fruit and vegetable Total fruit Total vegetable	18.0 serv/wk 27.0 35.0 44.0 62.0 4.0 serv/wk 8.5 12.0 16.0 23.5 11.0 serv/wk 17.0 22.0 28.5 41.5	1.00 1.00 (0.82, 1.22) 1.12 (0.92, 1.36) 1.21 (0.99, 1.49) 1.05 (0.84, 1.31) 1.00 1.05 (0.87, 1.26) 1.00 (0.82, 1.22) 1.08 (0.88, 1.32) 1.14 (0.93, 1.39) 1.00 1.03 (0.85, 1.24) 0.99 (0.82, 1.21) 1.09 (0.90, 1.34) 1.07 (0.86, 1.32)	Age, total energy intake, BMI, WHR, education, smoking, alcohol intake, physical activity
Knekt P et al, 2002, Finland	Finnish Mobile Clinic Health Examination Survey (FMCHES)	1966-1972 to 1994, 28 years follow-up	9878 participants, age >15 years, 526 cases	Dietary history interview, >100 items	Linkage to the Social Insurance Institution	Apple	>47 vs. 0 g/d	0.73 (0.57, 0.92)	Sex, age, intakes of vegetables and fruit other than apples

						Cruciferous vegetables	0.13 serv/d 0.21 0.35 0.57 1.00	1.00 0.91 (0.76, 1.09) 0.98 (0.84, 1.14) 0.96 (0.81, 1.14) 0.95 (0.80, 1.12)	
						Dark yellow vegetables	0.07 serv/d 0.2 0.34 0.57 1.00	1.00 0.90 (0.76, 1.07) 0.89 (0.75, 1.07) 0.92 (0.76, 1.11) 0.81 (0.67, 0.98)	
						Potatoes	0.13 serv/d 0.28 0.43 0.56 0.93	1.00 1.03 (0.87, 1.22) 0.97 (0.79, 1.19) 0.96 (0.81, 1.13) 1.02 (0.86, 1.22)	
Schulze M et al, 2004, USA	Nurses' Health Study II (NHS II)	1991-1999, 7.8 years follow-up	91 249 women, age 24-44 years, 741 cases	Validated semi-quantitative FFQ, 133 items	Self-reported/supplemental questionnaire/the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998)	Fruit punch	<1/mo 1-4/ 2-6/wk ≥1/d	1.00 0.90 (0.68, 1.18) 1.15 (0.79, 1.66) 2.00 (1.33, 3.03)	Alcohol intake, physical activity, family history of diabetes, smoking, postmenopausal hormone use, oral contraceptive use, intake of cereal fiber, magnesium, trans-fat, and ratio of polyunsaturated to saturated fat; and consumption of sugar-sweetened soft drinks, diet soft drinks, fruit juice, and fruit punch (other than the main exposure, depending on model)
Montonen J et al, 2005, Finland	Finnish Mobile Clinic Health Examination	1967-1972 to 1995, 23 years follow-up	4304 participants, age 40-69	Dietary history interview, > 100 food items	Linkage to the Social Insurance Institution	Potato	<132 g/d 132-196 197-283 >283	1.00 1.09 (0.82, 1.46) 1.27 (0.94, 1.72) 1.42 (1.02, 1.98)	Age, sex, BMI, energy intake, smoking, family

	Survey (FMCHES)		years, 383 cases			Vegetables	<42 g/d 42-78 79-130 >130	1.00 0.75 (0.56, 1.00) 0.93 (0.70, 1.22) 0.77 (0.57, 1.03)	history of diabetes, geographic area	
						Yellow and red vegetables	<19 g/d 19-41 42-77 >77	1.00 0.78 (0.59, 1.04) 0.90 (0.68, 1.18) 0.80 (0.60, 1.06)		
						Green vegetables	<11 g/d 11-24 25-43 >43	1.00 0.92 (0.71, 1.21) 0.91 (0.69, 1.20) 0.69 (0.50, 0.93)		
						Other vegetables	<1 g/d 1-3 4-10 >10	1.00 0.97 (0.73, 1.30) 0.94 (0.71, 1.24) 0.79 (0.58, 1.07)		
						Fruits and berries	<33 g/d 33-83 84-156 >156	1.00 0.77 (0.58, 1.02) 0.83 (0.63, 1.10) 0.69 (0.51, 0.92)		
						Fruit	<20 g/d 20-66 67-138 >138	1.00 0.89 (0.67, 1.18) 0.88 (0.66, 1.17) 0.82 (0.61, 1.11)		
						Berries	<4 g/d 4-10 11-20 >20	1.00 0.69 (0.53, 0.92) 0.65 (0.49, 0.87) 0.63 (0.47, 0.85)		
Song Y et al, 2005, USA	Women's Health Study (WHS)	1993-2003, 8.8 years follow-up	38 018 women, age ≥45 years, 1614 cases	Validated semi-quantitative FFQ, 131 items	Self-reported, validated by supplementary questionnaire and ADA criteria	Broccoli	None ≤1 serv/wk 2-4 ≥5	1.00 0.95 (0.77, 1.16) 0.94 (0.75, 1.18) 0.95 (0.69, 1.31)		Age, BMI, total energy intake, smoking, exercise, alcohol use, history of hypertension, history of high cholesterol, family history of diabetes, fiber intake, glycemic load, magnesium, total fat
						Apples	None ≤1 serv/wk 2-6 ≥1/d	1.00 0.83 (0.70, 0.98) 0.73 (0.60, 0.88) 0.72 (0.55, 0.94)		
						Onions	None ≤1 serv/wk 2-4 ≥5	1.00 1.09 (0.97, 1.22) 1.10 (0.92, 1.33) 1.18 (0.94, 1.48)		

Wang L et al, 2006, USA	Women's Health Study (WHS)	1992-2003, 10.2 years follow-up	35 783 women, age ≥45 years, 1544 cases	Validated semi-quantitative FFQ, 131 food items	Self-reported, validated by supplementary questionnaire and ADA criteria	Tomatoes Tomato juice	None 1-3 serv/mo 1-4 serv/wk ≥5 None 1-3 serv/mo 1 serv/wk ≥2	1.00 0.81 (0.64, 1.03) 0.94 (0.76, 1.17) 0.95 (0.74, 1.22) 1.00 1.00 (0.88, 1.13) 1.11 (0.94, 1.31) 0.93 (0.74, 1.15)	Age, energy, randomized treatment assignment, smoking, alcohol, exercise, family history of diabetes, post-menopause, postmenopausal hormone use, multivitamin use, BMI, history of hypertension, history of hypercholesterolemia
Montonen J et al, 2007, Finland	Finnish Mobile Clinic Health Examination Survey (FMCHES)	1967-1972 to 1994-1995, 12 years follow-up	4284 participants, age 40-69 years, 177 cases	Dietary history interview, >100 food items	Linkage to the Social Insurance Institution	Sweetened berry juice	0 g/d 7.5 21 51	1.00 0.68 (0.41, 1.14) 0.95 (0.60, 1.49) 1.56 (1.08, 2.26)	Age, sex, BMI, energy intake, smoking, geographic area, physical activity, family history of diabetes, prudent dietary pattern score, conservative pattern score, serum cholesterol, blood pressure, history of infarction, history of angina pectoris, history of cardiac failure
Bazzano LA et al, 2008, USA	Nurses' Health Study (NHS)	1984-2002, 18 years follow-up	71 346 women, age 38-63 years, 4529 cases	Validated semi-quantitative FFQ, 116 items	Self-reported/supplemental questionnaire/the National Diabetes Data group criteria (before 1997) or American Diabetes	Vegetables Fruit and vegetables (fruit juice excluded)	1.61 serv/d 2.35 3.09 4.25 5.40 3 serv/d increase 2.35 serv/d 3.41 4.47	1.00 1.00 (0.91, 1.10) 1.02 (0.93, 1.12) 1.08 (0.98, 1.19) 1.05 (0.94, 1.16) 1.04 (0.97, 1.13) 1.00 1.01 (0.92, 1.11) 1.00 (0.91, 1.10)	Age, BMI, physical activity, family history of diabetes, postmenopausal hormone use, alcohol, smoking, total energy intake, whole grains, nuts, processed meats,

					criteria (after 1998)		6.07 7.66 3 serv/d increase 0.25 serv/d 0.49 0.72 1.10 1.48 1 serv/d increase 0.04 serv/d 0.29 0.54 0.94 1.33 1 serv/d increase	0.99 (0.89, 1.09) 1.01 (0.90, 1.12) 0.99 (0.94, 1.05) 1.00 1.00 (0.91, 1.10) 1.02 (0.93, 1.11) 0.93 (0.85, 1.03) 0.90 (0.82, 1.00) 0.91 (0.84, 0.98) 1.00 1.21 (1.10, 1.33) 1.29 (1.17, 1.42) 1.25 (1.14, 1.38) 1.35 (1.22, 1.50) 1.18 (1.10, 1.26)	coffee, potatoes, and sugar-sweetened soft drinks
Palmer JR et al, 2008, USA	Black Women's Health Study (BWHS)	1995-2005, 10 years follow-up	43 960 women, age 21-69 years, 2713 cases	Validated FFQ, 68-items	Self-reported, validated by physician	Sweetened fruit drink Orange or grapefruit juice	<1 drink/mo 1-7 2-6 drinks/wk 1 drink/d ≥2 <1 drink/mo 1-7 2-6 drinks/wk 1 drink/d ≥2	1.00 1.08 (0.96, 1.22) 1.08 (0.96, 1.21) 1.17 (1.02, 1.33) 1.31 (1.13, 1.52) 1 0.93 (0.83, 1.05) 0.99 (0.88, 1.11) 0.99 (0.87, 1.14) 1.11 (0.92, 1.35)	Age, family history of diabetes, physical activity, cigarette smoking, years of education, and each of the 2 other types of drinks, intake of red meat, processed meats, cereal fiber, and coffee, and glycemic index
Villegas R et al, 2008, China	Shanghai Women's Health Study (SWHS)	2000-2002 and 2002-2004, 4.6 years follow-up	64 191 women, age 40-70 years, 1608 cases	In-person interview with FFQ, 77 items	Self-reported/ validated by fasting glucose level (ADA criteria) and/or an oral glucose tolerance test (OGTT) and/or use of hypoglycaemic medication	All vegetables Cruciferous vegetables Green leafy vegetables	121.5 g/d 181.6 236.0 302.6 428.0 5.0 g/d 10.9 17.0 25.8 45.2 28.0 g/d 51.3 70.7 94.1	1.00 0.74 (0.64, 0.87) 0.68 (0.58, 0.80) 0.72 (0.61, 0.84) 0.72 (0.61, 0.85) 1.00 0.79 (0.68, 0.91) 0.69 (0.60, 0.81) 0.60 (0.51, 0.71) 0.72 (0.61, 0.83) 1.00 0.78 (0.68, 0.91) 0.61 (0.52, 0.71) 0.58 (0.49, 0.68)	Age, daily energy intake, meat intake, BMI, WHR, smoking, alcohol consumption, physical activity, income level, education level, occupational status, and hypertension

						136.1	0.82 (0.71, 0.95)	
					Yellow vegetables	0.04 g/d	1.00	
						0.62	0.69 (0.60, 0.80)	
						2.0	0.63 (0.54, 0.73)	
						5.6	0.51 (0.43, 0.60)	
						17.3	0.55 (0.47, 0.64)	
					Allium vegetables	2.2 g/d	1.00	
						4.2	0.79 (0.68, 0.92)	
						6.5	0.70 (0.60, 0.81)	
						9.8	0.70 (0.60, 0.82)	
						17.9	0.69 (0.59, 0.81)	
					Tomatoes	6.8 g/d	1.00	
						17.0	0.68 (0.59, 0.79)	
						30.3	0.73 (0.63, 0.85)	
						49.2	0.61 (0.52, 0.71)	
						88.5	0.78 (0.67, 0.91)	
					Other vegetables	40.7 g/d	1.00	
						66.8	0.76 (0.65, 0.88)	
						90.9	0.84 (0.72, 0.98)	
						121.4	0.76 (0.64, 0.89)	
						181.0	0.76 (0.64, 0.89)	
					All fruits	87.0 g/d	1.00	
						170.4	0.76 (0.65, 0.88)	
						239.4	0.79 (0.67, 0.92)	
						315.0	0.87 (0.74, 1.02)	
						483	1.05 (0.90, 1.23)	
					Citrus fruit	2.5 g/d	1.00	
						10.0	0.84 (0.72, 0.98)	
						16.7	0.84 (0.72, 0.98)	
						25.2	0.81 (0.69, 0.95)	
						44.4	1.11 (0.95, 1.29)	
					Watermelon	29.6 g/d	1.00	
						71.3	0.84 (0.72, 0.98)	
						109.7	0.83 (0.71, 0.97)	
						149.1	0.90 (0.77, 1.05)	
						221.0	1.04 (0.89, 1.21)	
					Other fruit	27.6 g/d	1.00	
						67.2	0.77 (0.66, 0.90)	
						102.2	0.68 (0.58, 0.80)	
						142.7	0.85 (0.73, 0.99)	

							217.6	0.90 (0.77, 1.05)	
de Koning L et al, 2011, USA	Health Professionals Follow-up Study (HPFS)	1986-2006, 20 years follow-up	51 529 men, age 40-75 years, 2680 cases	Validated semi-quantitative FFQ, 131 items	Self-reported/supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998). Questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	Fruit punches, lemonades, other noncarbonated fruit drinks	Per 1 serv/d	1.05 (0.89, 1.25)	Age, smoking, physical activity, alcohol intake, multivitamin use, family history of type 2 diabetes, high triglycerides (in 1986), high blood pressure, and use of diuretics
Cooper AJ et al, 2012, UK	EPIC-InterAct Study	1991-2007, 11 years follow-up	Sub-cohort: 14 800 participants, age 40-79 years, 10 821 cases	Country-specific, validated dietary questionnaires	Self-reported/ registers/drug registers/ hospital admissions/ mortality data	Total fruit and vegetables	<235.7 g/d ≥235.7 - <369.1 ≥369.1 - <544.8 ≥544.8	1.00 0.92 (0.83, 1.03) 0.93 (0.84, 1.03) 0.90 (0.80, 1.01)	Country, age, centre, sex, education, BMI, physical activity, smoking, total energy intake and alcohol intake
						Total fruit	<103.7 g/d ≥103.7 - <193.4 ≥193.4 - <315.9 ≥315.9	1.00 0.92 (0.83, 1.03) 0.94 (0.83, 1.05) 0.89 (0.76, 1.04)	
						Citrus fruit	<10.1 g/d ≥10.1 - <35.9 ≥35.9 - <79.4 ≥79.4	1.00 0.96 (0.86, 1.07) 1.00 (0.90, 1.10) 1.01 (0.86, 1.19)	Total fruit: additionally adjusted for total vegetable intake
						Non-citrus fruit	<53.0 g/d ≥53.0 - <120.9 ≥120.9 - <213.5 ≥213.5	1.00 1.02 (0.92, 1.13) 0.97 (0.87, 1.08) 0.94 (0.79, 1.13)	Citrus-and non-citrus fruit: adjusted for other fruit sub-types
						Total vegetable	<100.5 g/d ≥100.5 - <154.8 ≥154.8 - <237.6 ≥237.6 <3.2 g/d	1.00 0.92 (0.84, 1.01) 0.93 (0.83, 1.05) 0.94 (0.84, 1.05) 1.00	Non-citrus fruit: Umea (Sweden) excluded (no info)

						Green leafy vegetables ≥3.2 - <14.1 ≥14.1 - <37.7 ≥37.7 <28.6 g/d Fruiting vegetables ≥28.6 - <50.5 ≥50.5 - <87.1 ≥87.1 <3.9 g/d Root vegetables ≥3.9 - <11.1 ≥11.1 - <27.3 ≥27.3 <1.5 g/d Cabbages ≥1.5 - <8.5 ≥8.5 - <21.4 ≥21.4 <2.6 g/d Onion & garlic ≥2.6 - <7.0 ≥7.0 - <17.7 ≥17.7 <0.2 g/d Stalk vegetables, sprouts ≥0.2 - <3.8 ≥3.8 - <9.8 ≥9.8 <3.4 g/d Other vegetables ≥3.4 - <10.2 ≥10.2 - <23.0 ≥23.0	0.74 (0.65, 0.84) 0.75 (0.65, 0.86) 0.84 (0.65, 1.07) 1.00 0.94 (0.86, 1.04) 0.96 (0.86, 1.06) 0.97 (0.85, 1.12) 1.00 0.98 (0.88, 1.08) 0.85 (0.76, 0.95) 0.87 (0.77, 0.99) 1.00 0.94 (0.74, 1.19) 0.93 (0.80, 1.07) 0.90 (0.75, 1.09) 1.00 0.94 (0.75, 1.18) 0.88 (0.71, 1.10) 0.92 (0.63, 1.33) 1.00 0.91 (0.70, 1.18) 0.78 (0.68, 0.91) 0.82 (0.63, 1.07) 1.00 1.01 (0.87, 1.19) 0.90 (0.78, 1.04) 0.96 (0.76, 1.22)	Total vegetables: additionally adjusted for total fruit intake Green leafy vegetables, cabbages, onion and garlic, stalk vegetables and sprouts, other vegetables: Umea (Sweden) excluded (no info) Green leafy vegetable: Denmark excluded from analysis as there was not enough information to calculate HRs and 95% CIs Onion and garlic: France excluded (no info)	
Elwood P et al, 2013, UK	Caerphilly Cohort Study (CaPS)	1979-2009, 30 years follow-up	2235 men, age 45-59 years, 214 cases	FFQ	Self-reported, validated by medical records	Fruit and vegetables	3 + vs. <3 serv/d	0.91 (0.62, 1.33)	Age and social class
Eshak ES et al, 2013, Japan	Japan Public Health Center-based Prospective Study (JPHC)	1990-1995 to 1990-2000, 10 years follow-up	27 585 participants, (12 137 men, 15 448 women), age 40-59 years, 824 cases (484	Validated FFQ, 44 items	Self-reported, validated by medical records	100% fruit juice 100% fruit juice	Rarely ≤2 times/wk 3-4 times/wk Almost every day Rarely ≤2 times/wk 3-4 times/wk Almost every day	1.00 0.81 (0.65, 1.01) 0.93 (0.65, 1.35) 1.17 (0.69, 2.00) 1.00 0.94 (0.73, 1.21) 0.90 (0.58, 1.40) 1.37 (0.79, 2.37)	Age, BMI, family history of diabetes, education, occupation, smoking status, alcohol, history of hypertension, physical activity,

			men, 340 women)			Vegetable juice	Rarely ≤2 times/wk 3-4 times/wk Almost every day	1.00 0.84 (0.65, 1.09) 0.81 (0.49, 1.39) 1.27 (0.65, 2.51)	coffee, green tea, energy-adjusted intakes of dietary magnesium, calcium, vitamin D, rice and total dietary fiber, and total energy intake
						Vegetable juice	Rarely ≤2 times/wk 3-4 times/wk Almost every day	1.00 0.97 (0.69, 1.35) 0.92 (0.47, 1.79) 0.71 (0.28, 1.82)	
Fagherazzi G et al, 2013, France	Etude Epidémiologique auprès des femmes de la Mutuelle Générale de l'Education Nationale–European Prospective Investigation into Cancer and Nutrition cohort (E3N)	1993-2007, 14 years follow-up	66 118 women, age 40-65 years, 1369 cases	Validated diet-history questionnaire, 208 items	Self-reported/ a diabetes diet plan/ the use of diabetic drugs/ a hospitalization for diabetes, validated by drug registries or supplementary questionnaire	100% fruit juice	Non-consumers <180 180–447 mL/wk 448–967 mL/wk >967 mL/wk	1.00 0.90 (0.76, 1.07) 0.95 (0.81, 1.12) 1.18 (1.01, 1.38) 0.93 (0.78, 1.10)	Age, years of education, smoking, physical activity, hypertension, hypercholesterolemia, use of hormone replacement therapy, family history of diabetes, self-reported use of antidiabetic drugs, alcohol, omega-3 fatty acid intake, carbohydrate, coffee, fruit and vegetables, and processed-meat consumption, dietary pattern, total energy intake and BMI
Jacques PF et al, 2013, USA	Framingham Heart Study Offspring (FHSO)	1991-2008, 11.9 years follow-up	2 915 participants, age 10-70 years, 308 cases	Semi-quantitative FFQ, 145 items	Fasting glucose concentrations and/or a medical and medication use history	Apples and pears	<138 g/wk 138-620 621-896 ≥897	1.00 0.99 (0.67, 1.46) 0.63 (0.31, 1.26) 0.73 (0.35, 1.56)	Sex, time-dependent variables age, cardiovascular disease, current smoker, BMI, cumulative mean energy intake
						Banana	<114 g/wk 114-512 513-740 ≥741	1.00 1.16 (0.78, 1.73) 1.06 (0.59, 1.89) 1.36 (0.76, 2.43)	
Kurotani K et al, 2013, Japan	Japan Public Health Center-based	1995-1998 to 2000-2003, 5	48 437 men and women (21 269	Validated self-administered FFQ, 147 items	Self-reported, validated by	Total vegetable and fruit intake (men)	146 g/d 273.1 414.1	1.00 0.85 (0.66, 1.10) 1.08 (0.83, 1.40)	Age, public health centre area, BMI, smoking, alcohol

Prospective Study (JPHC)	years follow-up	men, 27 168 women), age 45-75 years, 896 cases (530 men, 366 women)	medical records		686.8	0.93 (0.67, 1.29)	consumption, leisure-time activity, history of hypertension, coffee consumption, family history of diabetes, magnesium intake, calcium intake, energy intake
				Total vegetable and fruit intake (women)	209.7 g/d	1.00	
					365.7	0.94 (0.69, 1.28)	
					532.9	0.79 (0.56, 1.11)	
					858.7	1.04 (0.69, 1.55)	
				Total vegetable intake (men)	75.2 g/d	1.00	
					141.7	0.93 (0.73, 1.19)	
					213.1	0.92 (0.70, 1.20)	
					355.4	0.81 (0.59, 1.13)	
				Total vegetable intake (women)	99.5 g/d	1.00	
					172.7	1.04 (0.77, 1.41)	
					252.5	0.76 (0.54, 1.08)	
					406.9	0.99 (0.66, 1.47)	
				Total fruit intake (men)	36.4 g/d	1.00	
					113.1	0.94 (0.73, 1.19)	
					191.6	0.91 (0.70, 1.18)	
					362.4	0.94 (0.71, 1.26)	
				Total fruit intake (women)	74.4 g/d	1.00	
					166.3	0.73 (0.53, 1.00)	
					272.2	0.96 (0.70, 1.32)	
					487.1	1.04 (0.73, 1.48)	
				Total green and yellow vegetables (men)	24.7 g/d	1.00	
					58.8	0.82 (0.64, 1.06)	
					94.6	1.05 (0.82, 1.36)	
	172.4	0.90 (0.66, 1.22)					
Total green and yellow vegetables (women)	35.4 g/d	1.00					
	70.9	1.06 (0.79, 1.42)					
	113.2	0.84 (0.61, 1.17)					
	197.5	0.89 (0.61, 1.29)					
Green leafy vegetables (men)	4.5 g/d	1.00					
	11.8	0.92 (0.72, 1.17)					
	22.7	0.88 (0.68, 1.14)					
	47.2	0.83 (0.62, 1.12)					
Green leafy vegetables (women)	7.4 g/d	1.00					
	16.7	0.81 (0.60, 1.10)					
	29.5	0.88 (0.65, 1.20)					
	57.5	0.81 (0.57, 1.16)					
Cruciferous vegetables (men)	17.6 g/d	1.00					
	37.3	1.02 (0.80, 1.30)					
	60.8	0.94 (0.73, 1.22)					

						Cruciferous vegetables (women)	103.9 24.0 g/d 47.6 72.5 119.8	0.78 (0.58, 1.06) 1.00 1.09 (0.80, 1.48) 1.13 (0.82, 1.55) 1.10 (0.77, 1.57)	
						Citrus fruits (men)	7.2 g/d 46.5 79.3	1.00 1.00 (0.79, 1.28) 0.85 (0.65, 1.10)	
						Citrus fruits (women)	165.4 19.1 g/d 66.0 114.8 248.9	1.04 (0.79, 1.36) 1.00 0.91 (0.67, 1.23) 0.92 (0.67, 1.27) 1.14 (0.82, 1.58)	
Muraki I et al, 2013, USA	Nurses' Health Study (NHS)	1984-2008, 21 years follow-up	66 105 women, age 30-55 years, 6358 cases	Validated semi-quantitative FFQ, 116 items	Self-reported/supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998). Questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	Total whole fruit consumption	<4 serv/wk 5-6 1 serv/d 2 ≥3 Every 3 serv/wk	1.00 0.92 (0.85, 0.99) 0.96 (0.80, 0.93) 0.86 (0.79, 0.93) 0.90 (0.81, 0.99) 0.98, 0.96, 1.00	Age, ethnicity, BMI, smoking, multivitamin use, physical activity, family history of diabetes, menopausal status and post-menopausal hormone use, oral contraceptive use, total energy intake, fruit juice consumption and modified alternate healthy eating index score. Individual fruit consumption was mutually adjusted
						Grapes and raisins	<1 serv/mo 1-3 1 serv/wk 2-4 ≥5 Every 3 serv/wk	1.00 0.91 (0.86, 0.97) 0.88 (0.80, 0.95) 0.80 (0.72, 0.88) 0.77 (0.64, 0.92) 0.84 (0.78, 0.91)	
						Peaches, plums and apricots	<1 serv/mo 1-3 1 serv/wk 2-4 ≥5 Every 3 serv/wk	1.00 0.99 (0.93, 1.07) 1.00 (0.92, 1.08) 1.04 (0.94, 1.14) 0.92 (0.78, 1.09) 1.00 (0.93, 1.07)	
						Prunes	<1 serv/mo 1-3 1 serv/wk 2-≥5 Every 3 serv/wk	1.00 0.99 (0.92, 1.07) 0.86 (0.73, 1.02) 0.89 (0.75, 1.06) 0.87 (0.74, 1.03)	
						Bananas	<1 serv/mo 1-3 1 serv/wk 2-4	1.00 1.08 (0.98, 1.19) 1.05 (0.95, 1.17) 1.04 (0.94, 1.15)	

						≥5	1.08 (0.96, 1.21)	
						Every 3 serv/wk	1.01 (0.96, 1.06)	
					Cantaloupe	<1 serv/mo	1.00	
						1-3	1.00 (0.93, 1.08)	
						1 serv/wk	1.06 (0.98, 1.15)	
						2-≥5	1.07 (0.96, 1.19)	
						Every 3 serv/wk	1.08 (0.98, 1.18)	
					Apples and pears	<1 serv/mo	1.00	
						1-3	0.94 (0.84, 1.04)	
						1 serv/wk	0.94 (0.84, 1.05)	
						2-4	0.85 (0.77, 0.95)	
						≥5	0.82 (0.73, 0.92)	
					Oranges	Every 3 serv/wk	0.91 (0.87, 0.95)	
						<1 serv/mo	1.00	
						1-3	0.96 (0.89, 1.04)	
						1 serv/wk	1.03 (0.94, 1.13)	
						2-4	0.96 (0.87, 1.05)	
						≥5	1.03 (0.92, 1.15)	
						Every 3 serv/wk	1.00 (0.95, 1.06)	
					Grapefruit	<1 serv/mo	1.00	
						1-3	0.91 (0.85, 0.97)	
						1 serv/wk	0.95 (0.88, 1.03)	
						2-4	0.88 (0.80, 0.96)	
						≥5	0.86 (0.75, 0.98)	
						Every 3 serv/wk	0.92 (0.87, 0.98)	
					Total berries	<1 serv/mo	1.00	
						1-3	0.93 (0.86, 1.01)	
						1 serv/wk	0.95 (0.87, 1.03)	
						2-4	0.91 (0.82, 0.99)	
						≥5	0.96 (0.83, 1.11)	
						Every 3 serv/wk	0.97 (0.91, 1.03)	
					Strawberries	<1 serv/mo	1.00	
						1-3	0.94 (0.87, 1.01)	
						1 serv/wk	0.98 (0.90, 1.07)	
						2-4	0.87 (0.77, 0.98)	
						≥5	0.99 (0.79, 1.25)	
						Every 3 serv/wk	0.94 (0.85, 1.03)	
					Blueberries	<1 serv/mo	1.00	
						1-3	0.90 (0.85, 0.96)	
						1 serv/wk	0.89 (0.82, 0.98)	

						Fruit juice	2-≥5 Every 3 serv/wk <1 serv/wk 1 2-4 5-6 ≥1 serv/d Per 3 serv/wk	0.82 (0.69, 0.98) 0.77 (0.66, 0.91) 1.00 1.09 (0.98, 1.21) 1.13 (1.03, 1.23) 1.13 (1.03, 1.24) 1.21 (1.12, 1.31) 1.07 (1.04, 1.11)	
Muraki I et al, 2013, USA	Nurses' Health Study II (NHS II)	1991-2009, 20 years follow-up	85 104 women, age 25-42 years, 3153 cases	Validated semi-quantitative FFQ, 131 items	Self-reported/supplemental questionnaire/the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998)	Total whole fruit consumption Grapes and raisins Peaches, plums and apricots Prunes Bananas Cantaloupe	<4 serv/wk 5-6 1 serv/d 2 ≥3 Every 3 serv/wk <1 serv/mo 1-3 1 serv/wk 2-4 ≥5 Every 3 serv/wk <1 serv/mo 1-3 1 serv/wk 2-4 ≥5 Every 3 serv/wk <1 serv/mo 1-3 1 serv/wk 2-4 ≥5 Every 3 serv/wk <1 serv/mo 1-3 1 serv/wk 2-4 ≥5 Every 3 serv/wk <1 serv/mo 1-3 1 serv/wk	1.00 0.86 (0.77, 0.95) 0.84 (0.76, 0.94) 0.88 (0.78, 0.98) 0.92 (0.78, 1.08) 0.99 (0.96, 1.00) 1.00 0.81 (0.74, 0.88) 0.85 (0.75, 0.96) 0.83 (0.72, 0.97) 0.88 (0.66, 1.16) 0.91 (0.81, 1.02) 1.00 1.07 (0.97, 1.18) 1.03 (0.91, 1.16) 0.99 (0.86, 1.14) 1.01 (0.78, 1.31) 0.97 (0.87, 1.08) 1.00 0.85 (0.75, 0.96) 1.00 (0.77, 1.31) 1.16 (0.88, 1.53) 1.03 (0.79, 1.34) 1.00 0.95 (0.84, 1.07) 0.95 (0.83, 1.08) 0.82 (0.72, 0.94) 0.80 (0.67, 0.94) 0.87 (0.81, 0.94) 1.00 0.99 (0.90, 1.09) 1.05 (0.94, 1.17)	Age, ethnicity, BMI, smoking, multivitamin use, physical activity, family history of diabetes, menopausal status and post-menopausal hormone use, oral contraceptive use, total energy intake, fruit juice consumption and modified alternate healthy eating index score. Individual fruit consumption was mutually adjusted

						2-≥5	1.11 (0.94, 1.30)	
						Every 3 serv/wk	1.12 (0.96, 1.32)	
					Apples and pears	<1 serv/mo	1.00	
						1-3	0.83 (0.72, 0.95)	
						1 serv/wk	0.83 (0.72, 0.96)	
						2-4	0.79 (0.68, 0.91)	
						≥5	0.76 (0.64, 0.90)	
					Oranges	Every 3 serv/wk	0.92 (0.86, 0.99)	
						<1 serv/mo	1.00	
						1-3	0.94 (0.85, 1.04)	
						1 serv/wk	0.93 (0.82, 1.05)	
						2-4	0.93 (0.81, 1.07)	
						≥5	0.97 (0.78, 1.21)	
					Grapefruit	Every 3 serv/wk	0.99 (0.89, 1.09)	
						<1 serv/mo	1.00	
						1-3	1.00 (0.91, 1.09)	
						1 serv/wk	1.06 (0.94, 1.20)	
						2-4	0.97 (0.83, 1.14)	
						≥5	0.91 (0.69, 1.21)	
					Total berries	Every 3 serv/wk	0.97 (0.86, 1.09)	
						<1 serv/mo	1.00	
						1-3	0.93 (0.84, 1.05)	
						1 serv/wk	0.93 (0.82, 1.05)	
						2-4	0.92 (0.80, 1.05)	
						≥5	1.03 (0.86, 1.24)	
					Strawberries	Every 3 serv/wk	1.02 (0.94, 1.11)	
						<1 serv/mo	1.00	
						1-3	0.97 (0.87, 1.08)	
						1 serv/wk	1.01 (0.89, 1.15)	
						2-4	1.09 (0.93, 1.27)	
						≥5	1.08 (0.81, 1.43)	
					Blueberries	Every 3 serv/wk	1.09 (0.97, 1.22)	
						<1 serv/mo	1.00	
						1-3	0.83 (0.76, 0.91)	
						1 serv/wk	0.90 (0.79, 1.04)	
						2-≥5	0.69 (0.55, 0.87)	
					Fruit juice	Every 3 serv/wk	0.67 (0.54, 0.83)	
						<1 serv/wk	1.00	
						1	0.92 (0.81, 1.05)	
						2-4	0.97 (0.87, 1.00)	

						2-4	0.91 (0.77, 1.07)	
						≥ 5	0.93 (0.78, 1.11)	
						Every 3 serv/wk	0.98 (0.92, 1.06)	
					Oranges	<1 serv/mo	1.00	
						1-3	0.89 (0.79, 1.01)	
						1 serv/wk	0.91 (0.79, 1.04)	
						2-4	0.89 (0.78, 1.03)	
						≥5	0.89 (0.76, 1.05)	
						Every 3 serv/wk	0.97 (0.90, 1.05)	
					Grapefruit	<1 serv/mo	1.00	
						1-3	1.03 (0.93, 1.14)	
						1 serv/wk	1.09 (0.96, 1.24)	
						2-4	0.93 (0.81, 1.06)	
						≥5	1.08 (0.90, 1.30)	
						Every 3 serv/wk	0.99 (0.91, 1.08)	
					Total berries	<1 serv/mo	1.00	
						1-3	0.93 (0.83, 1.03)	
						1 serv/wk	0.95 (0.84, 1.07)	
						2-4	0.94 (0.81, 1.09)	
						≥5	1.22 (0.98, 1.52)	
						Per 3 serv/wk	1.24 (1.08, 1.42)	
					Strawberries	<1 serv/mo	1.00	
						1-3	0.95 (0.85, 1.05)	
						1 serv/wk	0.98 (0.85, 1.13)	
						2-4	1.16 (0.95, 1.42)	
						≥5	1.51 (1.00, 2.28)	
						Every 3 serv/wk	1.22 (1.03, 1.43)	
					Blueberries	<1 serv/mo	1.00	
						1-3	0.94 (0.85, 1.03)	
						1 serv/wk	0.96 (0.80, 1.15)	
						2-≥5	0.74 (0.55, 1.00)	
						Every 3 serv/wk	0.75 (0.58, 0.98)	
					Fruit juice	<1 serv/wk	1.00	
						1	1.07 (0.91, 1.26)	
						2-4	0.99 (0.86, 1.13)	
						5-6	1.05 (0.92, 1.20)	
						≥1 serv/d	1.13 (1.01, 1.27)	
						Per 3 serv/wk	1.06 (1.01, 1.11)	

Romaguera D et al, 2013, UK	EPIC-InterAct Study	1991-2007, 11.7 years follow-up	Sub-cohort: 15 374 participants, age 40-79, 11 684 cases	Country-specific validated dietary questionnaires	Self-report, validated by linkage to primary-care registers, secondary-care registers, medication use (drug registers), hospital admissions and mortality data	Juices and nectar	0.0 g/d 17.1 100.0 338.3	1.00 0.97 (0.86, 1.10) 1.04 (0.96, 1.13) 1.06 (0.90, 1.25)	Sex, educational level, physical activity, smoking status, alcohol consumption; juices and total soft drinks were mutually adjusted; sugar-sweetened and artificially sweetened soft drinks were also mutually adjusted plus adjustment for juice consumption, energy intake and BMI
Mursu J et al, 2014, Finland	Kuopio Ischaemic Heart Disease Risk Factor Study (KIHD)	1984-1989 to 2006-2008, 19.3 years follow-up	2332 men, age 42-60 years, 432 cases	Instructed 4-day food recording	Self-reported, diabetes register, blood glucose measurements and OGTT	Total fruit and vegetables Fruit Berries Fruit and berry juices Vegetables Cruciferous vegetable	90.94 g/d 192.50 284.80 469.26 0.71 g/d 33.82 99.13 241.25 0.00 g/d 14.68 41.04 108.55 0.00 g/d 39.03 128.21 387.25 36.29 g/d 82.73 128.18 231.92 0.00 g/d 3.76 14.28	1.00 0.79 (0.60, 1.03) 0.89 (0.68, 1.16) 0.76 (0.57, 1.02) 1.00 0.95 (0.72, 1.25) 0.87 (0.66, 1.15) 0.98 (0.75, 1.29) 1.00 1.15 (0.90, 1.47) 0.89 (0.68, 1.17) 0.65 (0.49, 0.88) 1.00 1.07 (0.82, 1.39) 1.03 (0.78, 1.34) 0.99 (0.74, 1.31) 1.00 0.90 (0.69, 1.17) 0.92 (0.70, 1.20) 0.81 (0.61, 1.07) 1.00 1.15 (0.89, 1.49) 0.89 (0.67, 1.76)	Age, examination years, BMI, WHR, smoking, education, leisure time physical activity, family history of diabetes, intake of energy, alcohol

							43.95	0.79 (0.59, 1.05)	
Qiao Y et al, 2014, USA	Women's Health Initiative (WHI)	1993-2005, 7.6 years follow-up	154 493 participants, age 50-79 years, 10 307 cases	Validated FFQ, 122 items	Self-reported, validated by medication and laboratory data	Vegetables	<3.01 serv/d ≥3.01	1.00 1.10 (0.96, 1.26)	Age, education, cigarette smoking, BMI, WHR, physical activity, log (daily energy intake), family history of diabetes, study arms and hormone therapy use
Lacoppidan SA et al, 2015, Denmark	Diet, Cancer, and Health cohort (DCH)	1993-2011, 15.3 years follow-up	55 060 participants (28 953 women, 26 107 men), age 50-64 years, 7366 cases (3269 women, 4097 men)	Validated FFQ, 192-items	Linkage to National Diabetes Registry	Apples and pears (women) Apples and pears (men)	<70.99 g/d ≥71 <55.99 g/d ≥56	1.00 1.03 (0.96, 1.11) 1.00 0.97 (0.91, 1.04)	Age, schooling level, participation in sports, smoking status, alcohol intake, red and processed meat, total energy intake, BMI and waist circumference
Muraki I et al, 2016, USA	Nurses' Health Study (NHS)	1984-2010, 22.4 years follow-up	70 773 women, age 30-55 years, 7436 cases	Validated semi-quantitative FFQ, 116 items	Self-reported/supplemental questionnaire/the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998). Questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	Potatoes	<1 serv/wk 1 2-4 5-6 ≥7 Every 3 serv/wk	1.00 1.08 (0.93, 1.26) 1.15 (1.00, 1.32) 1.22 (1.05, 1.40) 1.27 (1.04, 1.56) 1.08 (1.04, 1.13)	Age, ethnicity, smoking status, alcohol intake, multivitamin use, physical activity, a family history of diabetes, menopausal status and postmenopausal hormone use, oral contraceptive use, total energy intake, modified aHEI score and baseline BMI

Muraki I et al, 2016, USA	Nurses' Health Study II (NHS II)	1991-2011, 18.4 years follow-up	87 739 women, age 25-42 years, 4621 cases	Validated semi-quantitative FFQ, 131 items	Self-reported/supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998).	Potatoes	<1 serv/wk 1 2-4 5-6 ≥7 Every 3 serv/wk	1.00 0.95 (0.78, 1.16) 0.99 (0.82, 1.19) 1.09 (0.90, 1.31) 1.38 (1.08, 1.76) 1.12 (1.05, 1.18)	Age, ethnicity, smoking status, alcohol intake, multivitamin use, physical activity, family history of diabetes, menopausal status and postmenopausal hormone use, oral contraceptive use, total energy intake, modified aHEI score and baseline BMI
Muraki I et al, 2016, USA	Health Professionals Follow-up Study (HPFS)	1986-2010, 19.5 years follow-up	40 669 men, age 40-75 years, 3305 cases	Validated semi-quantitative FFQ, 131 items	Self-reported/supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998). Questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	Potatoes	<1 serv/wk 1 2-4 5-6 ≥7 Every 3 serv/wk	1.00 0.94 (0.76, 1.17) 1.03 (0.85, 1.24) 1.09 (0.89, 1.32) 1.38 (1.07, 1.78) 1.10 (1.03, 1.17)	Age, ethnicity, smoking status, alcohol intake, multivitamin use, physical activity, a family history of diabetes, total energy intake, modified aHEI score and baseline BMI
Muraki et al, 2016, USA	Nurses' Health Study (NHS)	1984-2010, 21 years follow-up	70 773 women, age 30-55 years, 7436 cases 87 739	Validated semi-quantitative FFQ, 116 items	Self-reported/supplemental questionnaire/ the National Diabetes Data group criteria (before 1997)	Baked, boiled or mashed potatoes (pooled)	Almost never to 1-3 serv/mo 1 serv/wk 2-4 ≥5 Every 3 serv/wk Almost never	1.00 1.02 (0.95, 1.09) 1.03 (0.96, 1.10) 1.08 (1.00, 1.16) 1.04 (1.01, 1.08) 1.00	Age, ethnicity, smoking status, alcohol intake, multivitamin use, physical activity, a family history of diabetes,

	Nurses' Health Study II (NHS II)	1991-2011, 18.4 years follow-up	women, age 25-42 years, 4621 cases	Validated semi-quantitative FFQ, 131 items	or American Diabetes criteria (after 1998). In NHS and HPFS, questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	French fries (pooled)	1-3 serv/mo 1 serv/wk 2-4 ≥5 Every 3 serv/wk	1.11 (1.06, 1.17) 1.17 (1.11, 1.24) 1.26 (1.18, 1.35) 1.32 (1.13, 1.55) 1.19 (1.13, 1.25)	menopausal status, postmenopausal hormone use, oral contraceptive use (NHS and NHS II), total energy intake, modified aHEI score, baked, boiled or mashed potatoes (for french fries), and french fries (for baked, boiled, or mashed potatoes) and baseline BMI
	Health Professionals Follow-up Study (HPFS)	1986-2010, 19.5 years follow-up	40 669 men, age 40-75 years, 3305 cases	Validated semi-quantitative FFQ, 131 items					
		Median follow-up 20.0 years							
Alperet DJ et al, 2017, Singapore	Singapore Chinese Health Study (SCHS)	1993-2010, 10.9 years follow-up	45 411 participants, age 45-74 years, 5207 cases	Validated semi-quantitative FFQ, 165 items	Self-reported, validated by linkage with a nationwide hospital-based discharge database and supplementary questionnaire	Total whole-fruit (all)	0.1 serv/wk 1.5 3.0 5.5 9.6 16.6 25.3 Per 3 serv/wk	1.00 1.10 (0.92, 1.30) 1.15 (1.00, 1.32) 1.11 (0.98, 1.27) 1.06 (0.93, 1.21) 1.08 (0.93, 1.25) 1.08 (0.91, 1.27) 0.99 (0.98, 1.01)	Age, sex, dialect group, year of baseline interview, total daily energy intake, physical activity, education, smoking, alcohol intake, BMI, total vegetable intake, unsweetened soy intake, saturated fat intake, dairy intake, soft drink consumption, coffee intake, black and green tea intake, fruit- and vegetable-juice intake, mutually adjusted for individual fruits Juice: adjusted for all the above, included dietary fiber, but not adjusted for fruit-
						Total whole-fruit (men)	0.0 serv/wk 1.5 3.0 5.5 9.6 16.6 25.5 Per 3 serv/wk	1.00 1.01 (0.75, 1.35) 1.24 (0.99, 1.56) 1.25 (1.00, 1.54) 1.16 (0.94, 1.43) 1.24 (0.99, 1.56) 1.33 (1.04, 1.71) 1.01 (0.99, 1.03)	
						Total whole-fruit (women)	0.2 serv/wk 1.5 3.0 5.5 9.6 16.6 25.1 Per 3 serv/wk	1.00 1.14 (0.92, 1.41) 1.11 (0.93, 1.32) 1.04 (0.88, 1.23) 1.00 (0.85, 1.18) 0.97 (0.81, 1.17) 0.88 (0.71, 1.11) 0.97 (0.96, 0.99)	
						Temperate fruit (all) <i>apples</i> ,	0.0 serv/wk 0.5	1.00 1.00	

						<i>pears, apricots,</i>	1.3	0.95 (0.85, 1.06)	and vegetable-juice intake
						<i>peaches, grapes,</i>	2.9	0.98 (0.88, 1.09)	
						<i>persimmon</i>	5.0	0.96 (0.87, 1.05)	
							8.1	0.94 (0.83, 1.05)	
						Temperate fruit	0.0 serv/wk	0.86 (0.77, 0.97)	
						(men)	0.5	1.00	
							1.3	0.99 (0.85, 1.16)	
							2.9	1.02 (0.87, 1.19)	
							5.0	1.03 (0.89, 1.19)	
							8.1	0.99 (0.83, 1.17)	
						Temperate fruit	0.0 serv/wk	0.97 (0.82, 1.16)	
						(women)	0.5	1.00	
							1.4	0.91 (0.78, 1.05)	
							3.0	0.95 (0.82, 1.09)	
							5.1	0.90 (0.79, 1.03)	
							8.1	0.89 (0.76, 1.04)	
						Apple (all)	0.0 serv/wk	0.79 (0.67, 0.92)	
							0.5	1.00	
							1.0	0.97 (0.89, 1.05)	
							2.5	0.93 (0.85, 1.02)	
							5.0	0.93 (0.86, 1.01)	
							7.0	0.90 (0.79, 1.03)	
							Per 3 serv/wk	0.82 (0.74, 0.92)	
						Apple (men)	0.0 serv/wk	0.93 (0.90, 0.97)	
							0.5	1.00	
							1.0	0.93 (0.81, 1.06)	
							2.5	0.98 (0.85, 1.12)	
							5.0	0.94 (0.83, 1.07)	
							7.0	0.94 (0.77, 1.14)	
							Per 3 serv/wk	0.95 (0.80, 1.13)	
						Apple (women)	0.0 serv/wk	0.98 (0.92, 1.04)	
							0.5	1.00	
							1.0	0.99 (0.88, 1.11)	
							2.5	0.91 (0.81, 1.02)	
							5.0	0.92 (0.83, 1.03)	
							7.0	0.87 (0.74, 1.03)	
							Per 3 serv/wk	0.75 (0.64, 0.87)	
						Pear (all)	0.0 serv/wk	0.90 (0.86, 0.95)	
							0.5	1.00	
							1.0	0.99 (0.93, 1.06)	

						2.5	1.02 (0.94, 1.11)	
						Per 3 serv/wk	1.07 (0.97, 1.18)	
					Pear (men)	0.0 serv/wk	1.08 (0.99, 1.19)	
						0.5	1.00	
						1.0	1.03 (0.93, 1.14)	
						2.5	1.01 (0.88, 1.14)	
						Per 3 serv/wk	1.05 (0.90, 1.23)	
					Pear (women)	0.0 serv/wk	1.07 (0.93, 1.23)	
						0.5	1.00	
						1.0	0.97 (0.89, 1.06)	
						2.5	1.04 (0.93, 1.15)	
						Per 3 serv/wk	1.09 (0.96, 1.23)	
					Grapes (all)	0.0 serv/wk	1.10 (0.97, 1.23)	
						0.3	1.00	
						1.3	0.95 (0.89, 1.01)	
						2.0	0.98 (0.88, 1.08)	
						Per 3 serv/wk	0.86 (0.75, 0.99)	
					Grapes (men)	0.0 serv/wk	0.87 (0.76, 0.99)	
						0.5	1.00	
						1.3	0.97 (0.88, 1.06)	
						2.0	1.02 (0.87, 1.19)	
						Per 3 serv/wk	0.81 (0.65, 1.01)	
					Grapes (women)	0.0 serv/wk	0.87 (0.71, 1.07)	
						0.3	1.00	
						1.3	0.94 (0.86, 1.02)	
						2.0	0.95 (0.83, 1.08)	
						Per 3 serv/wk	0.89 (0.75, 1.06)	
					Subtropical fruits (all)	0.0 serv/wk	0.87 (0.73, 1.03)	
						0.5	1.00	
						1.1	0.97 (0.89, 1.06)	
						2.5	0.99 (0.90, 1.09)	
						5.1	1.01 (0.93, 1.09)	
						7.1	0.98 (0.88, 1.10)	
						Per 3 serv/wk	1.01 (0.90, 1.12)	
					Subtropical fruits (men)	0.0 serv/wk	1.00 (0.97, 1.04)	
						0.5	1.00	
						1.1	0.96 (0.84, 1.11)	
						2.5	1.03 (0.89, 1.20)	
						5.1	1.07 (0.94, 1.22)	
						7.1		

						Subtropical fruits (women)	0.0 serv/wk	1.02 (0.85, 1.21)	
							0.5	1.07 (0.91, 1.26)	
							1.1	1.00	
							2.5	0.99 (0.88, 1.11)	
							5.1	0.97 (0.86, 1.09)	
							7.1	0.97 (0.87, 1.08)	
						Oranges (all)	0.0 serv/wk	0.96 (0.83, 1.12)	
							0.6	0.96 (0.84, 1.11)	
							1.0	1.00	
							2.5	0.96 (0.88, 1.05)	
							5.0	1.00 (0.92, 1.10)	
							7.0	1.01 (0.94, 1.09)	
							Per 3 serv/wk	1.07 (0.95, 1.21)	
						Oranges (men)	0.0 serv/wk	1.01 (0.91, 1.13)	
							0.6	1.02 (0.98, 1.06)	
							1.0	1.00	
							2.5	0.93 (0.81, 1.07)	
							5.0	1.02 (0.89, 1.18)	
							7.0	1.09 (0.96, 1.22)	
							Per 3 serv/wk	1.10 (0.92, 1.32)	
						Oranges (women)	0.0 serv/wk	1.05 (0.89, 1.23)	
							0.6	1.03 (0.98, 1.09)	
							1.0	1.00	
							2.5	0.99 (0.89, 1.12)	
							5.0	1.00 (0.89, 1.12)	
							7.0	0.98 (0.88, 1.08)	
							Per 3 serv/wk	1.06 (0.90, 1.24)	
						Tangerine (all)	0.0 serv/wk	1.00 (0.87, 1.15)	
							0.1	1.01 (0.96, 1.06)	
							1.5	1.00	
							4.1	1.05 (0.99, 1.11)	
							Per 3 serv/wk	0.91 (0.77, 1.06)	
						Tangerine (men)	0.0 serv/wk	0.90 (0.79, 1.04)	
							0.1	0.90 (0.81, 1.00)	
							1.5	1.00	
							4.1	1.03 (0.94, 1.13)	
							Per 3 serv/wk	0.94 (0.73, 1.20)	
						Tangerine (women)	0.0 serv/wk	0.87 (0.70, 1.08)	
							0.1	0.90 (0.77, 1.05)	
							1.5	1.00	

						4.1	1.06 (0.98, 1.15)	
						Per 3 serv/wk	0.89 (0.72, 1.10)	
					Tropical fruit (all)	0.0 serv/wk	0.90 (0.75, 1.08)	
						0.6	0.88 (0.77, 1.01)	
						1.4	1.00	
						2.8	1.02 (0.91, 1.16)	
						5.0	1.05 (0.93, 1.18)	
						10.0	1.05 (0.94, 1.17)	
					Tropical fruit (men)	0.0 serv/wk	1.01 (0.89, 1.14)	
						0.6	1.08 (0.95, 1.22)	
						1.4	1.00	
						2.8	1.20 (0.97, 1.50)	
						5.0	1.12 (0.91, 1.38)	
						10.1	1.19 (0.98, 1.45)	
					Tropical fruit (women)	0.0 serv/wk	1.16 (0.95, 1.41)	
						0.6	1.24 (1.01, 1.53)	
						1.4	1.00	
						2.8	0.95 (0.81, 1.10)	
						5.0	1.02 (0.88, 1.17)	
						9.5	0.98 (0.86, 1.13)	
					Banana (all)	0.0 serv/wk	0.94 (0.80, 1.10)	
						0.5	0.99 (0.83, 1.17)	
						1.0	1.00	
						2.5	0.99 (0.92, 1.07)	
						5.0	0.96 (0.89, 1.05)	
						7.0	0.96 (0.87, 1.05)	
						Per 3 serv/wk	1.04 (0.91, 1.19)	
					Banana (men)	0.0 serv/wk	1.09 (0.93, 1.29)	
						0.6	1.03 (0.98, 1.08)	
						1.0	1.00	
						2.5	1.13 (0.99, 1.28)	
						5.0	1.12 (0.98, 1.28)	
						7.0	1.06 (0.92, 1.23)	
						Per 3 serv/wk	1.19 (0.99, 1.43)	
					Banana (women)	0.0 serv/wk	1.49 (1.20, 1.84)	
						0.5	1.11 (1.04, 1.19)	
						1.0	1.00	
						2.5	0.93 (0.85, 1.03)	
						5.0	0.89 (0.80, 0.99)	
						7.0	0.91 (0.81, 1.03)	

						Papaya	Per 3 serv/wk	0.96 (0.78, 1.18)	
							0.0 serv/wk	0.77 (0.59, 1.01)	
							0.5	0.94 (0.87, 1.01)	
							1.0	1.00	
							2.5	1.00 (0.93, 1.07)	
							5.0	0.92 (0.85, 1.00)	
						Papaya (men)	Per 3 serv/wk	0.94 (0.85, 1.03)	
							0.0 serv/wk	0.89 (0.78, 1.02)	
							0.5	0.94 (0.88, 1.00)	
							1.0	1.00	
							2.5	1.01 (0.90, 1.13)	
							5.0	0.91 (0.80, 1.04)	
						Papaya (women)	Per 3 serv/wk	0.94 (0.81, 1.08)	
							0.0 serv/wk	0.83 (0.68, 1.00)	
							0.5	0.91 (0.83, 1.00)	
							1.0	1.00	
							2.5	1.00 (0.91, 1.09)	
							5.0	0.93 (0.83, 1.03)	
						Watermelon (all)	Per 3 serv/wk	0.94 (0.82, 1.07)	
							0.0 serv/wk	0.97 (0.80, 1.17)	
							0.5	0.97 (0.88, 1.06)	
							1.0	1.00	
							2.5	1.05 (0.98, 1.12)	
							5.0	1.06 (0.97, 1.15)	
						Watermelon (men)	Per 3 serv/wk	1.10 (0.98, 1.24)	
							0.0 serv/wk	1.10 (0.92, 1.32)	
							0.5	1.08 (0.98, 1.18)	
							1.0	1.00	
							2.5	1.05 (0.95, 1.17)	
							5.0	1.10 (0.97, 1.26)	
						Watermelon (women)	Per 3 serv/wk	1.14 (0.97, 1.34)	
							0.0 serv/wk	1.17 (0.92, 1.49)	
							0.5	1.11 (0.98, 1.26)	
							1.0	1.00	
							2.5	1.05 (0.96, 1.14)	
							5.0	1.02 (0.91, 1.15)	
						Honeydew melon (all)	Per 3 serv/wk	1.08 (0.91, 1.28)	
							0.0 serv/wk	1.01 (0.76, 1.36)	
							0.3	1.05 (0.91, 1.20)	
							1.0	1.00	

						Honeydew melon (men)	2.5 Per 3 serv/wk 0.0 serv/wk 0.3 1.0 2.5	1.03 (0.97, 1.10) 0.94 (0.85, 1.04) 1.05 (0.92, 1.19) 1.02 (0.90, 1.16) 1.00 0.98 (0.89, 1.09)	
						Honeydew melon (women)	Per 3 serv/wk 0.0 serv/wk 0.3 1.0 2.5	0.88 (0.76, 1.03) 0.98 (0.82, 1.18) 0.92 (0.76, 1.10) 1.00 1.06 (0.98, 1.15)	
						Total juice (all)	Per 3 serv/wk 0.0 serv/wk 0.5 1.0 2.5 7.0	0.99 (0.87, 1.13) 1.10 (0.92, 1.32) 1.12 (0.94, 1.34) 1.00 1.03 (0.95, 1.12) 1.13 (1.04, 1.24)	
						Total juice (men)	Per 3 serv/wk 0.0 serv/wk 0.5 1.0 2.5 5.5	1.05 (0.93, 1.18) 1.16 (1.00, 1.34) 1.08 (1.02, 1.16) 1.00 1.09 (0.96, 1.23) 1.16 (1.03, 1.32)	
						Total juice (women)	Per 3 serv/wk 0.0 serv/wk 0.5 1.0 2.5 7.0 Per 3 serv/wk	1.09 (0.93, 1.29) 1.15 (0.93, 1.41) 1.09 (1.00, 1.20) 1.00 0.99 (0.89, 1.11) 1.11 (0.99, 1.25) 1.01 (0.86, 1.20) 1.16 (0.94, 1.42) 1.07 (0.98, 1.18)	
Auerbach BJ et al, 2017, USA	The Women's Health Initiative (WHI)	1993-1998 to 2005, 7.8 years follow-up	114 219 women, age 50-79 years, 11 488 cases	Validated semi-quantitative FFQ, 122 items	Self-reported, validated by medication inventory and fasting plasma glucose levels	100% fruit juice Whole fruit	≤4 serv/wk 5-6 1 serv/d 2-3 ≥4 ≤4 serv/wk 5-6 1 serv/d	1.00 1.01 (0.97, 1.07) 0.97 (0.93, 1.02) 0.97 (0.87, 1.08) 0.82 (0.53, 1.27) 1.00 1.03 (0.97, 1.08) 1.00 (0.94, 1.06)	Age, education level, race/ethnicity, smoking status, physical activity, body mass index, hormone replacement therapy status, study arm,

						Citrus fruits	2-3 ≥4 <4 serv/wk 5-6 1 serv/d 2-3	1.04 (0.96, 1.11) 0.93 (0.73, 1.18) 1.00 0.93 (0.87, 0.99) 0.96 (0.85, 1.08) 0.98 (0.65, 1.47)	and total energy intake
Bahadoran Z et al, 2017, Iran	Tehran Lipid and Glucose Study (TLGS)	2006-2008 to 2012-2014, 6 years follow-up	3052 participants, age ≥19 years, 150 cases	Validated FFQ, 168 items	Fasting plasma glucose or medication use	Allium vegetables	1.0 g/wk 10 g/wk 39 g/wk Per each 10 g/wk	1.00 1.05 (0.69, 1.61) 0.86 (0.57, 1.31) 0.95 (0.91, 1.05)	Age, diabetes risk score, physical activity, and dietary pattern scores
Du H et al, 2017, China	The China Kadoorie Biobank Study (CKB)	2004-2008 to 2013-2014 7 years follow-up	482 591 participants, age 30-79 years, 9504 cases	Administered laptop-based questionnaire on diet	Linkage with local disease and death registries, health insurance databases	Fresh fruit consumption	Never/rarely Monthly 1-3 d/wk 4-6 d/wk Daily	1.00 0.99 (0.90, 1.09) 0.93 (0.84, 1.02) 0.93 (0.83, 1.04) 0.88 (0.83, 0.93)	Age, sex, region, education, income, alcohol, smoking, physical activity, survey season, BMI, family history of diabetes, dairy products, meat, preserved vegetables
Lv J et al, 2017, China	China Kadoorie Biobank (CKB)	2004-2008 to 2013, 7.2 years follow-up	461 211 participants, age 30-79 years, 8784 cases	Validated qualitative FFQ	Linkage with local disease and death registries	Vegetables and fruits	Less than daily (either or both) Daily (both)	1.00 0.91 (0.85, 0.97)	Age, sex, education, marital status, family history of diabetes, smoking, alcohol consumption, physical activity, red meat and wheat, BMI, WHR
Huang M et al, 2017, USA	The Women's Health Initiative (WHI)	1993-1998 to 2010, 8.4 years follow-up	64 850 women, age 50-79 years, 4675 cases	Validated semi-quantitative FFQ, 122 items	Self-report, validated by medical record review and laboratory data	Fruit drinks	<1 serv/wk 1 serv/wk - <1 serv/d ≥ 1 serv/d	1.00 0.99 (0.85, 1.15) 1.33 (0.89, 1.98)	Age, race, marital status, family income, education, family history of diabetes, BMI, change in BMI, WHR, systolic blood pressure, insurance status, antihypertensive

									use, antihyperlipidemic use, hormone replacement therapy use, calibrated energy, sugar-sweetened beverages, glycemic load, glycemic index, Alternate Healthy Eating Index, cardiovascular history, hysterectomy history, smoking status, physical activity, sitting time, alcohol consumption
Mamluk L, 2017, USA	The NIH-AARP Diet and Health Study (NIH-AARP)	1995-1996 to 2004-2006, 10.6 years follow-up	401 909 participants, age >50 years, 22 782 cases	Validated self-reported FFQ, 124-items	Self-administered questionnaires or in interviews	Fruit intake 1.99 3.24 7.73 Total intake 1 portion/d	0.82 portions/d 1.99 3.24 7.73 Total intake 1 portion/d	1.00 0.96 (0.91, 1.02) 0.95 (0.91, 0.99) 0.95 (0.91, 0.99) 1.00 (0.99, 1.01)	Age, sex, BMI, physical activity, energy intake, alcohol consumption, education, smoking
						Vegetable intake 1.04 portions/d 2.02 3.20 6.41 Total intake 1 portion/d	1.04 portions/d 2.02 3.20 6.41 Total intake 1 portion/d	1.00 0.92 (0.87, 0.97) 0.88 (0.84, 0.94) 0.92 (0.87, 0.97) 1.00 (0.99, 1.01)	
						Leafy green vegetables 0.65 portions/wk 1.98 3.10 8.06 Total intake 1 portion/d	0.65 portions/wk 1.98 3.10 8.06 Total intake 1 portion/d	1.00 0.90 (0.86, 0.94) 0.89 (0.85, 0.94) 0.87 (0.84, 0.90) 0.98 (0.98, 0.99)	
						Cabbage 0.32 portions/wk 1.63	0.32 portions/wk 1.63	1.00 1.06 (1.01, 1.12)	

							3.90 9.79 Total intake 1 portion/d	1.09 (1.00, 1.18) 1.07 (0.94, 1.21) 1.02 (1.01, 1.03)		
Mamluk L, 2017, Greece	EPIC-elderly Greece	1994-ongoing, 10 years follow-up	7567 participants, age >50 years, 1077 cases	Validated FFQ, 200 items	Self-administered questionnaires or in interviews	Fruit intake	1.06 portions/d 2.08 3.28 5.29 Total intake 1 portion/d	1.00 1.12 (0.77, 1.64) 1.09 (0.77, 1.54) 1.09 (0.77, 1.55) 1.00 (0.96, 1.04)	Age, sex, BMI, physical activity, energy intake, alcohol consumption, education, smoking	
						Vegetable intake	1.15 portions/d 2.12 3.39 5.61 Total intake 1 portion/d	1.00 1.96 (0.81, 4.77) 2.29 (0.99, 5.36) 2.15 (0.93, 5.03) 0.99 (0.95, 1.04)		
						Leafy green vegetables	0.87 portions/wk 2.13 3.13 6.18 Total intake 1 portion/d	1.00 1.23 (0.89, 1.71) 1.55 (1.14, 2.11) 1.52 (1.13, 2.04) 1.02 (0.99, 1.04)		
						Cabbage	0.84 portions/wk 2.06 3.06 4.88 Total intake 1 portion/d	1.00 0.93 (0.77, 1.11) 1.21 (1.07, 1.44) 1.09 (0.85, 1.41) 1.02 (0.98, 1.07)		
Chen GC et al, 2018, Singapore	Singapore Chinese Health Study (SCHS)	1993-2010, 10.9 years follow-up	45 411 participants, age 45-74 years, 5207 cases	Validated semi-quantitative FFQ, 165 items	Self-reported, validated by linkage with a nationwide hospital-based discharge database and supplementary questionnaire	Total vegetables	57.431 g/d 83.286 105.459 132.489 184.357	1.00 1.16 (1.06, 1.26) 0.98 (0.89, 1.07) 1.02 (0.93, 1.11) 1.08 (0.98, 1.18)		Age, sex, dialect group, year of baseline interview, energy intake, physical activity, education, smoking, alcohol, soft drink, coffee, energy-adjusted intakes of red meat, poultry, fish, nuts and seeds, soya products and
						Light green vegetables	14.181 g/d 22.094 28.989 37.608 55.001	1.00 0.99 (0.90, 1.08) 0.98 (0.90, 1.08) 1.02 (0.93, 1.11) 0.95 (0.87, 1.04)		
						Dark green leafy vegetables	13.946 g/d 23.505	1.00 0.96 (0.88, 1.04)		

						Cruciferous vegetables	32.201 43.484 65.735 18.882 g/d 30.243 40.428 53.278 79.211	1.03 (0.94, 1.12) 0.96 (0.88, 1.05) 1.05 (0.96, 1.15) 1.00 0.97 (0.89, 1.06) 1.02 (0.94, 1.12) 0.90 (0.82, 0.98) 0.97 (0.88, 1.06)	wholegrains, BMI, history of hypertension	
						Yellow vegetables	0.938 g/d 3.525 5.954 9.480 18.568	1.00 0.94 (0.87, 1.03) 0.95 (0.87, 1.03) 1.05 (0.96, 1.14) 0.97 (0.88, 1.06)		
						Potatoes	0.023 g/d 1.802 3.604 5.876 11.517	1.00 1.02 (0.94, 1.11) 0.97 (0.89, 1.06) 1.02 (0.94, 1.11) 0.95 (0.87, 1.04)		
						Tomatoes	0.579 g/d 2.898 5.249 8.226 17.315	1.00 1.02 (0.93, 1.11) 1.08 (0.99, 1.18) 1.09 (1.00, 1.19) 1.06 (0.97, 1.16)		
						Preserved vegetables	1.488 g/d 3.839 5.719 8.461 16.375	1.00 0.91 (0.84, 1.00) 0.95 (0.87, 1.04) 0.99 (0.90, 1.08) 0.97 (0.89, 1.06)		
Farhadnejad H et al, 2018, Iran	Tehran Lipid and Glucose Study (TLGS)	2006-2008 to 2012-2014, 6 years follow-up	1981 participants, age 18-75 years, 132 cases	Validated FFQ, 168 items	Fasting plasma glucose levels (ADA criteria)	Total potato	7.30 g/d 16.05 29.22 55.50	1.00 0.60 (0.34, 1.01) 0.75 (0.45, 1.26) 0.46 (0.25, 0.84)		Age, sex, BMI, physical activity, smoking, family history of diabetes, hypertension, serum triglycerides, high-density lipoprotein cholesterol, daily intakes of energy, saturated fat and food groups intake, including fruit,
						Boiled potato	2.42 g/d 10.38 20.76 36.3	1.00 0.65 (0.39, 1.08) 0.74 (0.43, 1.28) 0.47 (0.26, 0.85)		
						Fried potato	1.30 g/d 4.66 10.33 25.71	1.00 0.82 (0.50, 1.35) 0.60 (0.35, 1.03) 0.50 (0.25, 1.07)		

									whole grains, vegetables, nuts and legumes
Khalili-Moghadam S et al, 2018, Iran	Tehran Lipid and Glucose Study (TLGS)	2006-2008 to 2012-2014, 5.8 years follow-up	2139 participants (1168 women, 971 men), age 20-70 years, 143 cases	Validated semi-quantitative FFQ, 168 items	Fasting plasma glucose levels	Vegetables Fruit	1.7 serv/d 2.6 3.8 2.1 serv/d 3.5 5.1	1.00 0.75 (0.48, 1.17) 0.89 (0.57, 1.39) 1.00 1.14 (0.74, 1.75) 0.75 (0.46, 1.22)	Diabetes risk score: family history of diabetes, FPG concentrations, SBP, WHtR and TG/HDL-C
Ma L et al, 2018, USA	The Nurses' Health Study (NHS)	1984-2012, 23.6 years follow-up	71 256 women, age 30-55 years, 7586 cases	Validated FFQ, 116 items	Self-reported/supplemental questionnaire/the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998). Questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	Total cruciferous vegetables Broccoli Cabbage Cauliflower Brussel sprouts Kale, mustard or chard greens	<1 serv/wk 1-3 4-6 ≥1 serv/d Every 2 serv/wk <0.5 serv/wk 0.5-1 2-3 ≥4 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk	1.00 1.14 (1.04, 1.25) 1.23 (1.11, 1.36) 1.22 (1.07, 1.38) 1.03 (1.01, 1.05) 1.00 1.03 (0.95, 1.11) 1.07 (1.00, 1.15) 0.92 (0.77, 1.09) 1.01 (0.96, 1.05) 1.00 1.12 (1.00, 1.24) 1.22 (1.09, 1.36) 1.25 (1.12, 1.39) 1.10 (1.04, 1.17) 1.00 0.99 (0.91, 1.08) 1.04 (0.96, 1.14) 1.07 (0.98, 1.17) 1.05 (0.99, 1.10) 1.00 1.08 (1.03, 1.14) 1.14 (1.06, 1.24) 1.27 (1.16, 1.40) 1.28 (1.16, 1.40) 1.00 1.03 (0.96, 1.10) 0.98 (0.84, 1.15) 1.04 (0.87, 1.24) 1.04 (0.89, 1.21)	Age, race/ethnicity, family history of diabetes, smoking status, alcohol intake, physical activity, menopausal status and postmenopausal hormone use, oral contraceptive use, multivitamin use, hypertension, hypercholesterolemia, BMI, total energy intake, the modified alternate healthy eating index score

Ma L et al, 2018, USA	The Nurses' Health Study II (NHS II)	1991-2013, 20.2 years follow-up	88 293 women, age 24-44 years, 5438 cases	Validated FFQ, 131 items	Self-reported/ supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998)	Total cruciferous vegetables	<1 serv/wk	1.00	Age, race/ethnicity, family history of diabetes, smoking status, alcohol intake, physical activity, menopausal status and postmenopausal hormone use, oral contraceptive use, multivitamin use, hypertension, hypercholesterolemia, BMI, total energy intake, and the modified alternate healthy eating index score
							1-3	1.00 (0.93, 1.07)	
							4-6	1.10 (1.00, 1.20)	
							≥ 1 serv/d	1.10 (0.98, 1.24)	
						Broccoli	Every 2 serv/wk	1.02 (1.00, 1.04)	
							<0.5 serv/wk	1.00	
							0.5-1	0.91 (0.82, 1.01)	
							2-3	0.98 (0.92, 1.05)	
						Cabbage	≥4	1.06 (0.91, 1.23)	
							Every 2 serv/wk	1.00 (0.96, 1.04)	
							Never/almost never	1.00	
							<0.5 serv/wk	0.97 (0.91, 1.04)	
						Cauliflower	0.5-1	0.95 (0.85, 1.07)	
							≥1	1.13 (1.04, 1.23)	
Every 2 serv/wk	1.05 (0.99, 1.11)								
Never/almost never	1.00								
Brussel sprouts	<0.5 serv/wk	0.95 (0.88, 1.02)							
	0.5-1	0.91 (0.81, 1.02)							
	≥1	1.05 (0.98, 1.14)							
	Every 2 serv/wk	1.05 (1.00, 1.11)							
Kale, mustard or chard greens	Never/almost never	1.00							
	<0.5 serv/wk	1.04 (0.97, 1.11)							
	0.5-1	1.09 (0.93, 1.27)							
	≥1	1.09 (0.98, 1.22)							
	Every 2 serv/wk	1.11 (1.01, 1.23)							
	Never/almost never	1.00							
	<0.5 serv/wk	1.05 (0.95, 1.16)							
	0.5-1	1.20 (0.93, 1.54)							
	≥1	1.16 (0.97, 1.38)							
	Every 2 serv/wk	1.07 (1.00, 1.16)							
Ma L et al, 2018, USA	The Health Professionals Follow-up Study (HPFS)	1986-2012, 20.3 years follow-up	41 358 men, age 40-75 years, 3543 cases	Validated FFQ, 131 items	Self-reported/ supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria	Total cruciferous vegetables	<1 serv/wk	1.00	Age, race/ethnicity, family history of diabetes, smoking status, alcohol intake, physical activity, multivitamin use, hypertension, hypercholesterolemia, BMI, total energy
							1-3	0.98 (0.88, 1.09)	
							4-6	1.04 (0.92, 1.18)	
							≥ 1 serv/d	1.17 (1.00, 1.36)	
						Broccoli	Every 2 serv/wk	1.03 (1.01, 1.06)	
							<0.5 serv/wk	1.00	
							0.5-1	1.07 (0.97, 1.19)	
							2-3	1.02 (0.93, 1.11)	
							≥4	1.38 (1.10, 1.72)	
							Every 2 serv/wk	1.03 (0.98, 1.09)	

					(after 1998). Questionnaire-confirmed diagnosis of T2D was reconfirmed by medical record review	Cabbage Cauliflower Brussel sprouts Kale, mustard or chard greens	Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk Never/almost never <0.5 serv/wk 0.5-1 ≥1 Every 2 serv/wk	1.00 0.99 (0.86, 1.13) 1.11 (0.94, 1.32) 1.09 (0.97, 1.23) 1.00 (0.99, 1.02) 1.00 0.92 (0.84, 1.02) 1.00 (0.89, 1.12) 1.01 (0.90, 1.12) 1.04 (0.96, 1.13) 1.00 1.01 (0.94, 1.09) 1.11 (0.98, 1.25) 1.16 (1.03, 1.31) 1.11 (1.00, 1.24) 1.00 1.04 (0.95, 1.14) 1.07 (0.88, 1.30) 1.09 (0.90, 1.31) 1.08 (0.94, 1.24)	intake, and the modified alternate healthy eating index score
Dow C et al, 2019, Australia	The Australian Diabetes, Obesity and Lifestyle Study (AusDiab)	1999-2012, 11.7 years follow-up	6242 participants, age ≥ 25 years, 376 cases	Validated semi-quantitative FFQ, 80 items	Standard oral glucose tolerance test	Vegetables Fruit	<2.5 serv/d 2.5-4.9 5.0-5.9 ≥6 <0.75 serv/d 0.75-1.4 1.5-2.4 ≥2.5	1.00 0.89 (0.72, 1.11) 0.83 (0.37, 1.88) 0.29 (0.04, 2.10) 1.00 0.81 (0.62, 1.05) 0.68 (0.51, 0.91) 1.04 (0.76, 1.43)	Age, sex, education, smoking status, recreational physical activity, high triglycerides, low HDL cholesterol, family history of diabetes, energy intake, hypertension and waist circumference
Lee DH et al, 2019, USA	The Nurses' Health Study (NHS)	1986-2012, 22 years follow-up	67 139 women, age 30-55 years, 6946 cases	Validated FFQ, 116 items	Self-reported/supplemental questionnaire/the National Diabetes Data group criteria (before 1997) or American	Mushrooms	Never/almost never <1 serv/wk 1 2-4 ≥5 Per 2 serv/wk increase	1.00 1.03 (0.96, 1.10) 1.10 (1.02, 1.18) 1.18 (1.08, 1.28) 1.04 (0.91, 1.19) 1.00 (0.98, 1.03)	Age, total calorie intake, smoking, physical activity, race, family history of type 2 diabetes, baseline high blood cholesterol, baseline high blood pressure, alcohol intake,

					Diabetes criteria (after 1998). Questionnaire -confirmed diagnosis of T2D was reconfirmed by medical record review				multivitamin use, Prudent dietary pattern, Western dietary pattern, menopausal status and postmenopausal hormone use
Lee DH et al, 2019, USA	The Health Professionals Follow-up Study (HPFS)	1986-2012, 19.8 years follow-up	43 541 men, age 40-75 years, 3544 cases	Validated FFQ, 131 items	Self-reported/ supplemental questionnaire/ the National Diabetes Data group criteria (before 1997) or American Diabetes criteria (after 1998). Questionnaire -confirmed diagnosis of T2D was reconfirmed by medical record review	Mushrooms	Never/almost never <1 serv/wk 1 2-4 ≥5 Per 2 serv/wk increase	1.00 1.03 (0.94, 1.13) 1.02 (0.92, 1.13) 1.01 (0.89, 1.14) 1.04 (0.83, 1.31) 0.98 (0.94, 1.03)	Age, total calorie intake, smoking, physical activity, race, family history of type 2 diabetes, baseline high blood cholesterol, baseline high blood pressure, alcohol intake, multivitamin use, Prudent dietary pattern and Western dietary pattern
Scheffers FR et al, 2020, Netherlands	European Prospective Investigation into Cancer and Nutrition- Netherlands Study	1993-1997 - 2010, 14.6 years follow-up	36 147 men and women, age 20-69 years, 1477 cases	Validated FFQ, 178 items	Linkage to hospital discharge, diagnosis registry, and follow-up questionnaires , validated (up to 2006) by consulting the general practitioner or	Pure fruit juice (150 ml/glass)	Non-drinker <1 glass/wk 1-<4 4-<8 ≥8	1.00 1.00 (0.85-1.17) 0.98 (0.84-1.14) 0.97 (0.84-1.14) 0.98 (0.80-1.21)	Age, sex, education, physical activity, smoking, family history of diabetes, Dutch Healthy Diet Index 2015, alcohol, coffee, sugar-sweetened beverages, fruit, BMI, waist circumference

					pharmacist and general practitioner (after 2006)				
Rayner J et al, 2020, Australia	Australian Longitudinal Study on Women's Health	2001-2016, 15 years follow-up	9689 women, age 50-55 years, 959 cases	Validated FFQ, 80 items	Self-reported T2D were obtained at follow-up surveys and validated against hospital discharge data in a subset of the cohort	Fruit Fruit juice Vegetables	0.62 serv/d 1.18 1.77 2.74 0.01 serv/d 0.10 0.43 1.30 1.11 serv/d 1.75 2.26 3.28	1.22 (1.01-1.48) 1.06 (0.88-1.26) 1.10 (0.88-1.36) 1.00 0.94 (0.80-1.10) 0.90 (0.75-1.07) 0.95 (0.82-1.11) 1.00 1.03 (0.84-1.26) 1.02 (0.82-1.26) 1.01 (0.87-1.19) 1.00	Age, country of birth, energy intake, highest educational qualification, employment status, years of follow-up, history of gestational diabetes, physical activity, cereal, high fiber bread, pasta and rice, discretionary foods, white bread, dairy, red and processed meat, fish, BMI, added sugar
Ahmed A et al, 2020, Sweden	Stockholm Public Health Cohort	2010-2014, 4 years follow-up	14 718 men and 20 589 women, age 25-84 years, 319 cases	FFQ	Self-report	Vegetables (men) Fruit (men) Fruit and vegetables (men) Vegetables (women) Fruit (women) Fruit and vegetables (women)	≥2 serv/d <2 ≥2 serv/d <2 ≥4 serv/d <4 ≥2 serv/d <2 ≥2 serv/d <2 ≥4 serv/d <4	1.00 1.62 (1.00-2.61) 1.00 1.04 (0.60-1.59) 1.00 1.17 (0.66-2.08) 1.00 1.18 (0.82-1.71) 1.00 0.90 (0.65-1.26) 1.00 1.07 (0.73-1.58)	Age, education, BMI, smoking, alcohol, physical activity

Supplemental Table 5. Modified Newcastle-Ottawa Scale (NOS) assessment of the included cohort studies

Author, year	Selection			Comparability	Outcome assessment			Total
	Selection of non-exposed cohort	Exposure ascertainment	Demonstration of outcome not present at start	0.25 points for each adjustment	Outcome assessment	Long enough follow-up (≥5 years)	Adequacy of follow-up (≤10% lost)	
Ford, 2000	1	1	1	2	0.5	1	0	6.5
Meyer, 2000	1	1	1	2	1	1	0	7
Knekt, 2002	1	1	1	0.75	0.5	1	0	5.25
Hodge, 2004	1	0	1	2	1	0	1	6
Liu, 2004	1	1	1	2	1	1	0	7
Schulze, 2004	1	1	1	2	1	1	1	8
Montonen, 2005	1	1	1	1.75	0.5	1	0	6.25
Song, 2005	1	1	1	2	1	1	0	7
Wang, 2006	1	1	1	2	1	1	0	7
Montonen, 2007	1	1	1	2	0.5	1	0	6.5
Bazzano, 2008	1	1	1	2	1	1	0	7
Palmer, 2008	1	1	1	2	1	1	0	7
Villegas, 2008	1	1	1	2	0	0	1	6
de Koning, 2011	1	1	1	2	1	1	1	8
Cooper, 2012	1	1	1	2	0.5	1	1	7.5
Elwood, 2013	1	0	0	0.5	0	1	0	2.5
Eshak, 2013	1	1	1	2	1	1	0	7
Fagherazzi, 2013	1	1	1	2	1	1	1	8
Jacques, 2013	1	0	1	1.5	1	1	0	5.5
Kurotani, 2013	1	1	1	2	1	1	0	7
Muraki (NHS), 2013	1	1	1	2	1	1	1	8
Muraki (NHS II), 2013	1	1	1	2	1	1	1	8

Muraki, (HPFS) 2013	1	1	1	2	1	1	1	8
Romaguera, 2013	1	1	1	2	0.5	1	0	6.5
Mursu, 2014	1	1	1	2	1	1	1	8
Qiao, 2014	1	1	1	2	1	1	0	7
Lacoppidan, 2015	1	0	1	2	0.5	1	0	5.5
Muraki (NHS), 2016	1	1	1	2	1	1	0	7
Muraki (NHS II), 2016	1	1	1	2	1	1	0	7
Muraki (HPFS), 2016	1	1	1	2	1	1	0	7
Muraki (NHS, NHS II, HPFS), 2016	1	1	1	2	1	1	0	7
Alperet, 2017	1	1	1	2	1	1	0	7
Auerbach, 2017	1	1	1	2	1	1	0	7
Bahadoran, 2017	1	1	1	1	1	1	0	6
Du, 2017	1	0	1	2	1	1	1	7.0
Huang, 2017	1	1	1	2	1	1	0	7
Ly, 2017	1	0	1	2	1	1	1	7.0
Mamluk (NIH-AARP), 2017	1	1	1	2	0	1	0	6
Mamluk (EPIC-Elderly Greece), 2017	1	1	1	2	0	1	0	6
Chen, 2018	1	1	1	2	1	1	0	7
Farhadnejad, 2018	1	1	1	2	1	1	0	7
Khalili-Moghadam, 2018	1	1	1	1.25	1	1	0	6.25
Ma (NHS), 2018	1	1	1	2	1	1	0	7
Ma (NHS II), 2018	1	1	1	2	1	1	0	7
Ma (HPFS), 2018	1	1	1	2	1	1	0	7
Dow, 2019	1	1	1	2	1	1	0	7
Lee (NHS), 2019	1	1	1	2	1	1	1	8

Lee (HPFS), 2019	1	1	1	2	1	1	1	8
Scheffers, 2020	1	1	1	2	1	1	0	7
Rayner, 2020	1	1	1	2	0.5	1	0	6.5
Ahmed, 2020	1	0	1	1.5	0	0	0	3.5

Supplemental Table 6. Relative risks (95% confidence intervals) from nonlinear analysis of fruit and vegetable intake and type 2 diabetes

Fruit and vegetables (n=8)		Fruits (n=19)		Vegetables (n=15)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
0	1.00	0	1.00	24	1.00
100	0.97 (0.94-1.00)	100	0.92 (0.88-0.95)	100	0.94 (0.89-0.98)
200	0.95 (0.89-1.00)	200	0.87 (0.82-0.93)	200	0.88 (0.80-0.97)
300	0.92 (0.84-1.01)	300	0.88 (0.83-0.93)	300	0.86 (0.77-0.97)
400	0.91 (0.82-1.01)	400	0.90 (0.85-0.94)	400	0.87 (0.77-0.98)
500	0.90 (0.81-1.01)	500	0.92 (0.87-0.97)	500	0.88 (0.77-1.00)
600	0.90 (0.81-1.00)	600	0.94 (0.88-1.01)	600	0.89 (0.78-1.02)
700	0.91 (0.82-1.00)				
800	0.91 (0.82-1.01)				
Pnonlinearity	0.13	Pnonlinearity	<0.0001	Pnonlinearity	0.004

Supplemental Table 7. Relative risks (95% confidence intervals) from nonlinear analysis of fruit and vegetable subtypes and type 2 diabetes

Apples (n=2)		Apples and pears (n=4)		Bananas (n=5)		Berries (n=5)		Blueberries (n=3)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
0	1.00	0	1.00	0	1.00	0	1.00	1	1.00
50	0.91 (0.83-1.01)	50	0.90 (0.83-0.97)	20	0.95 (0.91-1.00)	10	0.93 (0.83-1.03)	10	0.86 (0.81-0.91)
100	0.86 (0.75-0.99)	100	0.87 (0.80-0.95)	40	0.92 (0.85-1.00)	20	0.89 (0.76-1.04)	20	0.79 (0.72-0.86)
150	0.83 (0.74-0.95)	150	0.87 (0.78-0.96)	60	0.91 (0.83-1.01)	30	0.89 (0.78-1.03)	30	0.76 (0.69-0.83)
200	0.82 (0.73-0.92)			80	0.91 (0.81-1.03)	40	0.92 (0.84-1.01)	40	0.76 (0.68-0.84)
250	0.81 (0.71-0.93)			100	0.92 (0.80-1.06)	50	0.97 (0.89-1.07)		
				120	0.92 (0.78-1.10)	60	1.05 (0.86-1.27)		
				140	0.93 (0.77-1.13)	70	1.13 (0.82-1.55)		
Pnonlinearity	0.37	Pnonlinearity	0.07	Pnonlinearity	0.04	Pnonlinearity	0.23	Pnonlinearity	0.003

Supplemental Table 8. Relative risks (95% confidence intervals) from nonlinear analysis of fruit and vegetable subtypes and type 2 diabetes

Cantaloupe (n=3)		Citrus fruits (n=6)		Oranges (n=4)		Grapefruit (n=3)		Grapes and raisins (n=4)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
2	1.00	0	1.00	0	1.00	2	1.00	0	1.00
10	1.05 (1.01-1.09)	50	1.01 (0.97-1.06)	20	0.99 (0.95-1.03)	20	0.97 (0.92-1.02)	10	0.88 (0.83-0.94)
20	1.09 (1.02-1.16)	100	1.02 (0.96-1.09)	40	0.98 (0.93-1.04)	40	0.95 (0.87-1.03)	20	0.83 (0.77-0.90)
30	1.12 (1.03-1.21)	150	1.03 (0.96-1.11)	60	0.99 (0.93-1.05)	60	0.94 (0.86-1.02)	30	0.83 (0.76-0.90)
40	1.14 (1.04-1.24)	200	1.04 (0.94-1.15)	80	0.99 (0.94-1.05)	80	0.93 (0.85-1.02)	40	0.84 (0.74-0.97)
50	1.14 (1.05-1.25)	250	1.05 (0.92-1.21)	100	1.00 (0.95-1.06)	100	0.93 (0.84-1.03)		
60	1.14 (1.05-1.25)	300	1.06 (0.89-1.28)	120	1.01 (0.96-1.08)				
70	1.14 (1.05-1.23)	330	1.07 (0.87-1.31)	130	1.02 (0.96-1.09)				
80	1.13 (1.05-1.22)								
pnonlinearity	0.04	pnonlinearity	0.94	pnonlinearity	0.41	pnonlinearity	0.49	pnonlinearity	0.01

Supplemental Table 9. Relative risks (95% confidence intervals) from nonlinear analysis of fruit and vegetable subtypes and type 2 diabetes

Peaches, plums, apricots (n=3)		Prunes (n=3)		Strawberries (n=3)		Watermelon (n=2)		Allium vegetables (n=3)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
1	1.00	0	1.00	1	1.00	g/d	RR (95% CI)	0	1.00
10	1.01 (0.97-1.05)	10	0.90 (0.82-0.98)	10	1.00 (0.94-1.06)	0	1.00	5	0.81 (0.67-0.97)
20	1.01 (0.94-1.08)	20	0.85 (0.74-0.97)	20	1.01 (0.91-1.12)	50	0.94 (0.74-1.21)	10	0.72 (0.55-0.96)
30	1.00 (0.92-1.09)	30	0.84 (0.74-0.96)	30	1.03 (0.90-1.19)	100	0.92 (0.62-1.35)	15	0.71 (0.52-0.96)
40	0.98 (0.89-1.08)	40	0.86 (0.77-0.97)	40	1.06 (0.90-1.26)	150	0.92 (0.63-1.35)	20	0.72 (0.53-0.97)
50	0.96 (0.86-1.07)	50	0.91 (0.79-1.05)	50	1.10 (0.90-1.36)	200	0.96 (0.72-1.27)	23	0.72 (0.53-0.99)
60	0.93 (0.83-1.06)			60	1.15 (0.89-1.49)	220	0.97 (0.77-1.24)		
70	0.91 (0.78-1.05)								
74	0.89 (0.76-1.05)								
pnonlinearity	0.29	pnonlinearity	0.06	pnonlinearity	0.39	pnonlinearity	0.61	pnonlinearity	0.045

Supplemental Table 10. Relative risks (95% confidence intervals) from nonlinear analysis of fruit and vegetable subtypes and type 2 diabetes

Broccoli (n=4)		Brussels sprouts (n=3)		Cabbage (n=6)		Cauliflower (n=3)		Cruciferous vegetables (n=8)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
0	1.00	1	1.00	0.8	1.00	1	1.00	0	1.00
20	1.01 (0.93-1.09)	2	1.02 (1.00-1.05)	20	1.15 (1.03-1.28)	2	0.98 (0.95-1.01)	20	0.97 (0.90-1.05)
40	1.03 (0.98-1.09)	4	1.05 (1.01-1.09)	40	1.20 (1.01-1.42)	4	0.96 (0.90-1.02)	40	0.96 (0.84-1.09)
60	1.07 (0.93-1.23)	6	1.07 (1.01-1.14)	60	1.23 (0.97-1.56)	6	0.96 (0.89-1.03)	60	0.96 (0.82-1.12)
80	1.11 (0.85-1.44)	8	1.10 (1.03-1.17)	80	1.26 (0.92-1.73)	8	0.98 (0.91-1.05)	80	0.97 (0.82-1.13)
100	1.14 (0.78-1.65)	10	1.12 (1.04-1.21)	100	1.29 (0.87-1.92)	10	1.01 (0.95-1.08)	100	0.99 (0.85-1.15)
		12	1.15 (1.06-1.25)	110	1.30 (0.84-2.02)	11	1.03 (0.97-1.09)	120	1.01 (0.87-1.17)
		14	1.18 (1.07-1.29)					140	1.04 (0.89-1.20)
pnonlinearity	0.81	pnonlinearity	0.98	pnonlinearity	0.04	pnonlinearity	0.03	pnonlinearity	0.32

Supplemental Table 11. Relative risks (95% confidence intervals) from nonlinear analysis of fruit and vegetable subtypes and type 2 diabetes

Green leafy vegetables (n=8)		Kale, mustard and chard greens (n=3)		Mushrooms (n=2)		Tomatoes (n=3)		Yellow vegetables (n=4)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
1.6	1.00	1	1.00	0.45	1.00	0	1.00	0	1.00
20	0.92 (0.82-1.04)	2	1.02 (0.99-1.05)	5	1.07 (0.97-1.17)	20	0.91 (0.68-1.23)	20	0.84 (0.66-1.07)
40	0.87 (0.70-1.07)	4	1.04 (0.99-1.10)	10	1.10 (0.96-1.27)	40	0.88 (0.57-1.37)	40	0.77 (0.55-1.08)
60	0.85 (0.66-1.09)	6	1.06 (0.98-1.13)	15	1.11 (0.95-1.28)	60	0.89 (0.56-1.40)	60	0.75 (0.53-1.05)
80	0.84 (0.65-1.10)	8	1.07 (0.99-1.16)	20	1.09 (0.95-1.25)	80	0.92 (0.61-1.38)	80	0.75 (0.56-1.01)
100	0.85 (0.66-1.10)	10	1.08 (0.99-1.18)	25	1.06 (0.93-1.21)	100	0.96 (0.68-1.34)	100	0.77 (0.59-1.00)
120	0.85 (0.66-1.11)	12	1.09 (0.99-1.20)						
140	0.86 (0.66-1.12)	13	1.10 (0.99-1.21)						
pnonlinearity	0.21	pnonlinearity	0.63	pnonlinearity	0.22	pnonlinearity	0.50	pnonlinearity	0.27

Supplemental Table 12. Relative risks (95% confidence intervals) from nonlinear analysis of potatoes and type 2 diabetes

Potatoes, boiled (n=2)		Potatoes, total (n=8)	
g/d	RR (95% CI)	g/d	RR (95% CI)
2.4	1.00	0	1.00
20	0.85 (0.58-1.25)	50	0.98 (0.89-1.08)
40	0.74 (0.35-1.58)	100	0.99 (0.84-1.16)
60	0.66 (0.21-2.08)	150	1.02 (0.85-1.23)
80	0.60 (0.12-2.91)	200	1.08 (0.89-1.31)
100	0.55 (0.07-4.39)	250	1.15 (0.95-1.40)
120	0.52 (0.04-7.06)	300	1.22 (1.00-1.50)
140	0.49 (0.02-12.02)	325	1.26 (1.02-1.55)
160	0.47 (0.01-21.39)		
$p_{\text{nonlinearity}}$	0.71	$p_{\text{nonlinearity}}$	0.15

Supplemental Table 13. Relative risks (95% confidence intervals) from nonlinear analysis of fruit juice and fruit drinks and type 2 diabetes

Fruit juice (n=9)		100% fruit juice (n=4)		Fruit drinks (n=6)	
g/d	RR (95% CI)	g/d	RR (95% CI)	g/d	RR (95% CI)
0	1.00	0	1.00	0	1.00
200	1.02 (0.97-1.07)	200	0.99 (0.89-1.11)	100	1.07 (0.99-1.14)
400	1.03 (0.97-1.10)	400	1.06 (0.63-1.80)	200	1.14 (1.01-1.28)
600	1.05 (0.99-1.11)	600	1.14 (0.42-3.12)	300	1.21 (0.99-1.47)
800	1.06 (1.01-1.12)	800	1.22 (0.28-5.35)	400	1.28 (0.95-1.72)
1000	1.08 (1.02-1.13)			500	1.36 (0.90-2.04)
1200	1.09 (1.04-1.15)				
1400	1.11 (1.05-1.16)				
1600	1.12 (1.07-1.18)				
1800	1.14 (1.08-1.20)				
p _{nonlinearity}	0.87	p _{nonlinearity}	0.74	p _{nonlinearity}	0.93

Supplemental Table 14. Subgroup analyses of fruit and vegetable intake and type 2 diabetes, high vs. low and dose-response

	Fruit and vegetables, high vs. low					Fruit and vegetables, dose-response (200 g/day)						
	<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b	<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b		
All studies	10	0.93 (0.89-0.98)	0	0.47		7	0.98 (0.95-1.01)	37.8	0.14			
Duration of follow-up												
<10 years follow-up	5	0.93 (0.88-0.99)	0	0.54	0.54	3	1.01 (0.97-1.05)	0	0.75	0.14		
≥10 years follow-up	5	0.91 (0.83-1.01)	27.9	0.24		4	0.95 (0.91-1.00)	46.3	0.13			
Gender												
Men	5	0.88 (0.74-1.04)	0	0.73	0.92/	1	0.89 (0.76-1.03)			0.46		
Women	5	0.95 (0.81-1.11)	43.8	0.13	0.30	3	1.00 (0.97-1.04)	0	0.62			
Men and women	3	0.92 (0.87-0.97)	0	0.37		3	0.95 (0.90-1.01)	45.8	0.16			
Geographic location												
Europe	4	0.88 (0.80-0.98)	0	0.76	0.68	2	0.95 (0.91-1.00)	3.2	0.31	0.32		
America	4	1.00 (0.92-1.09)	0	0.41		4	0.99 (0.94-1.04)	54.2	0.09			
Asia	2	0.91 (0.86-0.97)	0	0.62		1	1.00 (0.92-1.09)					
Australia												
Number of cases												
Cases <1.000	3	0.84 (0.70-1.02)	0	0.65	0.42	2	0.96 (0.85-1.08)	49.0	0.16	0.95		
Cases 1.000-<2.000	3	0.95 (0.81-1.11)	14.1	0.31		3	0.98 (0.90-1.06)	69.5	0.04			
Cases ≥2.000	4	0.94 (0.89-1.01)	30.1	0.23		2	0.98 (0.95-1.01)	0	0.36			
Study quality												
0-3	1	0.91 (0.62-1.33)			0.84	0				NC		
>3-6	1	0.91 (0.66-1.25)				0						
>6-8	8	0.94 (0.89-0.99)	19.1	0.28		7	0.98 (0.95-1.01)	55.4	0.03			
Adjustment for confounders												
Age	Yes	10	0.93 (0.89-0.98)	0	0.47	NC	Yes	7	0.98 (0.95-1.01)	55.4	0.03	NC
	No	0					No	0				
Education	Yes	6	0.91 (0.86-0.95)	0	0.56	0.07	Yes	4	0.95 (0.89-1.02)	59.3	0.06	0.28
	No	4	1.01 (0.92-1.10)	0	0.93		No	3	1.00 (0.96-1.03)	0	0.95	
Ethnicity	Yes	0				NC	Yes	0			NC	
	No	10	0.93 (0.89-0.98)	0	0.47		No	7	0.98 (0.95-1.01)	55.4	0.03	
Family history	Yes	4	0.93 (0.86-1.02)	34.3	0.21	0.93	Yes	4	0.99 (0.96-1.02)	0	0.50	0.46
	No	6	0.94 (0.86-1.02)	0	0.54		No	3	0.96 (0.89-1.04)	67.6	0.05	
Body mass index	Yes	9	0.94 (0.89-0.98)	7.7	0.37	0.89	Yes	7	0.98 (0.95-1.01)	55.4	0.03	NC
	No	1	0.91 (0.62-1.33)				No	0				
Waist circumference/WHR	Yes	3	0.91 (0.81-1.03)	34.6	0.22	0.40	Yes	2	0.97 (0.83-1.13)	70	0.07	0.69
	No	7	0.96 (0.89-1.02)	0	0.59		No	5	0.98 (0.94-1.01)	32.5	0.21	
Hypertension	Yes	3	0.96 (0.83-1.11)	18.4	0.29	0.64	Yes	2	1.00 (0.96-1.05)	0	0.98	0.45
	No	7	0.93 (0.88-0.97)	0	0.43		No	5	0.97 (0.92-1.01)	52.8	0.08	
Alcohol	Yes	9	0.94 (0.89-0.98)	7.7	0.37	0.89	Yes	7	0.98 (0.95-1.01)	55.4	0.03	NC
	No	1	0.91 (0.62-1.33)				No	0				

Smoking	Yes	9	0.94 (0.89-0.98)	7.7	0.37	0.89	Yes	7	0.98 (0.95-1.01)	55.4	0.03	NC
	No	1	0.91 (0.62-1.33)				No	0				
Physical activity	Yes	9	0.94 (0.89-0.98)	7.7	0.37	0.89	Yes	7	0.98 (0.95-1.01)	55.4	0.03	NC
	No	1	0.91 (0.62-1.33)				No	0				
Meat	Yes	2	0.95 (0.86-1.05)	60.9	0.11	0.76	Yes	1	0.99 (0.95-1.04)			0.74
	No	8	0.93 (0.86-1.00)	0	0.53		No	6	0.97 (0.93-1.02)	46.5	0.10	
Soft drinks	Yes	1	1.01 (0.90-1.12)			0.16	Yes	1	0.99 (0.95-1.04)			0.74
	No	9	0.92 (0.87-0.96)	0	0.62		No	6	0.97 (0.93-1.02)	46.5	0.10	
Whole grains	Yes	2	0.96 (0.86-1.05)	60.9	0.11	0.76	Yes	1	0.99 (0.95-1.04)			0.74
	No	8	0.93 (0.86-1.00)	0	0.53		No	6	0.97 (0.93-1.02)	46.5	0.10	
Coffee	Yes	2	1.00 (0.91-1.11)	0	0.79	0.15	Yes	2	0.99 (0.95-1.04)	0	0.81	0.56
	No	8	0.92 (0.87-0.96)	0	0.54		No	5	0.97 (0.92-1.02)	55.1	0.06	
Energy intake	Yes	6	0.96 (0.90-1.04)	14.4	0.32	0.21	Yes	6	0.99 (0.96-1.01)	3.2	0.40	0.09
	No	4	0.90 (0.85-0.96)	0	0.84		No	1	0.88 (0.80-0.98)			

n = number of studies

^a *P* for heterogeneity within each subgroup

^b *P* for heterogeneity between subgroups with meta-regression analysis

NC not calculatable

Supplemental Table 15. Subgroup analyses of fruit intake and type 2 diabetes, high vs. low and dose-response

	Fruits, high vs. low					Fruits, dose-response (200 g/day)						
	<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b	<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b		
All studies	20	0.93 (0.90-0.97)	9.3	0.34		19	0.96 (0.92-1.00)	68.7	<0.0001			
Duration of follow-up												
<10 years follow-up	9	0.96 (0.89-1.04)	33.4	0.15	0.64	8	0.98 (0.87-1.09)	84.7	<0.0001	0.50		
≥10 years follow-up	11	0.94 (0.91-0.97)	0	0.58		11	0.97 (0.95-0.99)	4.3	0.40			
Gender												
Men	5	1.01 (0.86-1.18)	44.7	0.12	0.10/	4	0.99 (0.90-1.10)	41.5	0.16	0.47/		
Women	9	0.96 (0.91-1.02)	0	0.48	0.73	9	0.98 (0.92-1.04)	61.3	0.008	0.80		
Men and women	9	0.91 (0.88-0.95)	12.0	0.34		8	0.91 (0.82-1.01)	82.6	<0.0001			
Geographic location												
Europe	5	0.94 (0.84-1.04)	0	0.60	0.52	4	0.95 (0.89-1.03)	0	0.62	0.41		
America	7	0.94 (0.91-0.98)	0	0.55		7	0.98 (0.95-1.02)	21.7	0.26			
Asia	5	0.97 (0.86-1.08)	58.2	0.05		5	0.94 (0.82-1.08)	89.7	<0.0001			
Australia	3	0.87 (0.75-1.01)	0	0.44		3	0.90 (0.81-1.01)	0	0.51			
Number of cases												
Cases <1.000	6	0.94 (0.83-1.07)	0	0.68	0.69	5	0.93 (0.84-1.03)	0	0.73	0.96		
Cases 1.000-<2.000	4	0.98 (0.84-1.16)	0	0.69		4	1.00 (0.89-1.12)	47.6	0.13			
Cases ≥2.000	10	0.93 (0.90-0.97)	19.4	0.26		10	0.95 (0.90-1.00)	81.4	<0.0001			
Study quality												
0-3	0				0.18	0				0.18		
>3-6	5	0.96 (0.92-1.00)	0	0.57		5	1.00 (0.95-1.06)	43.3	0.15			
>6-8	15	0.91 (0.88-0.95)	3.9	0.41		14	0.94 (0.88-0.99)	65.1	<0.0001			
Adjustment for confounders												
Age	Yes	19	0.94 (0.91-0.97)	10.8	0.32	0.39	Yes	18	0.96 (0.92-1.00)	69.9	<0.0001	0.40
	No	1	0.75 (0.46-1.22)				No	1	0.79 (0.53-1.19)			
Education	Yes	13	0.95 (0.90-1.00)	34.2	0.11	0.38	Yes	12	0.96 (0.91-1.02)	78.2	<0.0001	0.54
	No	7	0.91 (0.86-0.97)	0	0.91		No	7	0.94 (0.89-1.00)	0	0.52	
Ethnicity	Yes	5	0.90 (0.84-0.97)	0	0.33	0.29	Yes	5	0.95 (0.90-1.01)	18.0	0.30	0.69
	No	15	0.95 (0.91-1.00)	29.3	0.14		No	14	0.96 (0.91-1.02)	74.9	<0.0001	
Family history	Yes	11	0.90 (0.86-0.94)	0	0.94	0.03	Yes	11	0.91 (0.85-0.98)	56.0	0.01	0.04
	No	9	0.98 (0.92-1.04)	26.7	0.21		No	8	1.00 (0.96-1.04)	41.6	0.10	
Body mass index	Yes	18	0.93 (0.90-0.97)	13.8	0.29	0.96	Yes	18	0.96 (0.92-1.00)	71.6	<0.0001	0.57
	No	2	0.93 (0.69-1.26)	17.7	0.27		No	2	0.89 (0.71-1.12)	0	0.49	
Waist circumference/WHR	Yes	5	1.04 (0.94-1.16)	0	0.70	0.04	Yes	6	1.03 (0.96-1.10)	12.7	0.33	0.16
	No	15	0.92 (0.90-0.95)	0	0.51		No	13	0.94 (0.89-0.98)	74.9	<0.0001	
Hypertension	Yes	4	1.01 (0.91-1.11)	0	0.91	0.14	Yes	5	1.03 (0.98-1.09)	0	0.50	0.18
	No	16	0.93 (0.89-0.96)	15.3	0.28		No	14	0.94 (0.89-0.99)	74.1	<0.0001	
Alcohol	Yes	12	0.96 (0.91-1.01)	31.5	0.14	0.13	Yes	11	0.97 (0.92-1.03)	78.6	<0.0001	0.24
	No	8	0.89 (0.84-0.95)	0	0.91		No	8	0.93 (0.87-0.99)	19.4	0.28	

Smoking	Yes	17	0.94 (0.91-0.97)	11.3	0.32	0.12	Yes	16	0.96 (0.92-1.01)	71.7	<0.0001	0.23
	No	3	0.82 (0.70-0.96)	0	0.92		No	3	0.88 (0.79-0.99)	0	0.46	
Physical activity	Yes	18	0.94 (0.91-0.97)	12.6	0.30	0.25	Yes	17	0.96 (0.92-1.00)	71.0	<0.0001	0.23
	No	2	0.80 (0.62-1.03)	0	0.76		No	2	0.80 (0.62-1.04)	0	0.94	
Meat	Yes	3	0.91 (0.81-1.03)	61.4	0.08	0.06	Yes	3	0.88 (0.70-1.12)	94.3	<0.0001	0.21
	No	17	0.95 (0.92-0.98)	0	0.76		No	16	0.98 (0.97-1.00)	0	0.66	
Soft drinks	Yes	1	1.08 (0.91-1.28)			0.12	Yes	1	0.98 (0.90-1.06)			0.79
	No	19	0.93 (0.90-0.95)	0	0.46		No	18	0.95 (0.91-1.00)	70.4	<0.0001	
Whole grains	Yes	1	0.82 (0.68-0.99)			0.20	Yes	1	0.81 (0.65-1.00)			0.21
	No	19	0.94 (0.91-0.97)	5.8	0.39		No	18	0.96 (0.92-1.00)	68.7	<0.0001	
Coffee	Yes	2	1.04 (0.91-1.19)	0	0.49	0.14	Yes	2	0.99 (0.93-1.06)	0	0.57	0.51
	No	18	0.93 (0.90-0.96)	3.9	0.41		No	17	0.95 (0.90-1.00)	72.0	<0.0001	
Energy intake	Yes	17	0.95 (0.92-0.98)	0	0.58	0.05	Yes	17	0.98 (0.96-1.01)	17.1	0.25	<0.0001
	No	3	0.89 (0.82-0.97)	7.0	0.34		No	2	0.79 (0.73-0.84)	0	0.97	

n = number of studies

^a *P* for heterogeneity within each subgroup

^b *P* for heterogeneity between subgroups with meta-regression analysis

NC not calculatable

Supplemental Table 16. Subgroup analyses of vegetable intake and type 2 diabetes, high vs. low and dose-response

	Vegetables, high vs. low					Vegetables, dose-response (200 g/day)						
	<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b	<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b		
All studies	17	0.95 (0.88-1.02)	60.4	0.001		15	0.97 (0.94-1.01)	39.2	0.06			
Duration of follow-up												
<10 years follow-up	8	0.92 (0.80-1.05)	65.3	0.005	0.59	6	0.94 (0.85-1.04)	62.3	0.02	0.48		
≥10 years follow-up	9	0.97 (0.89-1.05)	59.8	0.01		9	1.00 (0.98-1.02)	0	0.51			
Gender												
Men	3	0.78 (0.64-0.94)	0	0.61	0.35/	2	0.85 (0.71-1.01)	0	0.76	0.52/		
Women	8	0.97 (0.87-1.09)	63.2	0.008	0.11	6	0.98 (0.90-1.05)	66.1	0.01	0.26		
Men and women	8	0.95 (0.87-1.05)	55.8	0.03		8	1.00 (0.97-1.02)	0	0.63			
Geographic location												
Europe	5	0.87 (0.73-1.03)	48.3	0.10	0.55	4	0.95 (0.88-1.02)	0	0.12	0.32		
America	5	1.02 (0.93-1.11)	61.3	0.04		4	1.01 (0.99-1.03)	0	0.76			
Asia	4	0.89 (0.70-1.13)	83.6	<0.0001		4	0.91 (0.81-1.02)	48.9	0.12			
Australia	3	0.94 (0.79-1.12)	0	0.46		3	0.91 (0.78-1.05)	0	0.59			
Number of cases												
Cases <1.000	7	0.87 (0.74-1.03)	48.8	0.07	0.27	7	0.88 (0.80-0.98)	0	0.93	0.05		
Cases 1.000-<2.000	4	1.00 (0.85-1.19)	35.7	0.20		4	0.96 (0.87-1.06)	74.7	0.008			
Cases ≥2.000	6	0.96 (0.87-1.05)	78.8	<0.0001		4	1.00 (0.98-1.03)	0	0.63			
Study quality												
0-3	0				0.05	0				0.46		
>3-6	5	0.85 (0.71-1.02)	69.5	0.01		4	0.93 (0.83-1.05)	77.8	0.004			
>6-8	12	1.00 (0.95-1.06)	25.2	0.20		11	1.00 (0.96-1.03)	0	0.49			
Adjustment for confounders												
Age	Yes	16	0.95 (0.88-1.02)	62.8	<0.0001	0.82	Yes	14	0.97 (0.94-1.01)	43.2	0.04	0.77
	No	1	0.89 (0.57-1.39)				No	1	0.89 (0.53-1.51)			
Education	Yes	12	0.94 (0.86-1.03)	67.6	<0.0001	0.89	Yes	10	0.96 (0.91-1.01)	50.8	0.03	0.51
	No	5	0.98 (0.88-1.08)	23.6	0.26		No	5	1.01 (0.96-1.06)	3.8	0.39	
Ethnicity	Yes	1	0.88 (0.60-1.29)			0.76	Yes	1	0.59 (0.19-1.68)			0.38
	No	16	0.95 (0.88-1.02)	62.7	<0.0001		No	14	0.97 (0.94-1.01)	41.3	0.05	
Family history	Yes	9	0.98 (0.89-1.07)	28.6	0.19	0.80	Yes	8	0.98 (0.92-1.04)	20.5	0.27	0.85
	No	8	0.94 (0.85-1.04)	73.6	<0.0001		No	7	0.97 (0.92-1.03)	57.8	0.03	
Body mass index	Yes	15	0.95 (0.89-1.02)	64.0	<0.0001	0.63	Yes	13	0.98 (0.94-1.02)	43.8	0.05	0.35
	No	2	0.78 (0.39-1.58)	14.7	0.28		No	2	0.88 (0.72-1.06)	0	0.94	
Waist circumference/WHR	Yes	6	0.90 (0.74-1.10)	73.7	0.002	0.57	Yes	5	0.90 (0.78-1.02)	61.0	0.04	0.04
	No	11	0.97 (0.90-1.04)	52.3	0.02		No	10	1.00 (0.98-1.02)	0	0.80	
Hypertension	Yes	5	0.91 (0.74-1.11)	80.0	0.001	0.74	Yes	5	0.93 (0.85-1.02)	65.0	0.02	0.20
	No	12	0.96 (0.89-1.03)	45.0	0.05		No	10	1.00 (0.98-1.02)	0	0.62	
Alcohol	Yes	12	0.94 (0.87-1.02)	66.4	0.001	0.85	Yes	11	0.98 (0.94-1.02)	49.6	0.03	0.29
	No	5	0.96 (0.81-1.13)	40.5	0.15		No	4	0.90 (0.78-1.03)	0	0.80	

Smoking	Yes	14	0.95 (0.88-1.02)	67.6	<0.0001	0.89	Yes	12	0.97 (0.93-1.01)	49.8	0.03	0.75
	No	3	0.94 (0.80-1.11)	0	0.88		No	3	0.94 (0.77-1.15)	0	0.66	
Physical activity	Yes	15	0.96 (0.89-1.03)	63.3	<0.0001	0.32	Yes	13	0.97 (0.94-1.01)	44.1	0.04	0.33
	No	2	0.80 (0.63-1.03)	0	0.60		No	2	0.81 (0.58-1.13)	0	0.66	
Meat	Yes	4	0.95 (0.81-1.12)	83.9	<0.0001	0.80	Yes	4	0.96 (0.85-1.08)	77.5	0.004	0.87
	No	13	0.94 (0.88-1.01)	35.9	0.10		No	11	1.00 (0.97-1.02)	0	0.51	
Soft drinks	Yes	2	1.07 (1.00-1.14)	0	0.69	0.11	Yes	2	1.03 (0.97-1.09)	0	0.87	0.19
	No	15	0.92 (0.85-0.99)	50.3	0.01		No	13	0.96 (0.91-1.00)	43.2	0.05	
Whole grains	Yes	3	1.06 (0.99-1.13)	0	0.64	0.12	Yes	3	1.03 (0.97-1.09)	0	0.85	0.22
	No	14	0.91 (0.84-0.99)	53.5	0.009		No	12	0.95 (0.91-1.00)	47.8	0.03	
Coffee	Yes	3	1.05 (0.97-1.13)	13.4	0.32	0.22	Yes	3	1.01 (0.95-1.08)	13.5	0.32	0.40
	No	14	0.92 (0.85-1.00)	53.6	0.009		No	12	0.96 (0.91-1.01)	44.8	0.05	
Energy intake	Yes	15	0.96 (0.89-1.03)	62.8	0.001	0.26	Yes	14	0.97 (0.94-1.01)	43.2	0.04	0.77
	No	2	0.79 (0.62-1.01)	0	0.53		No	1	0.89 (0.53-1.51)	0	0	

n = number of studies

^a *P* for heterogeneity within each subgroup

^b *P* for heterogeneity between subgroups with meta-regression analysis

NC not calculatable

Supplemental Table 17. Subgroup analyses of cruciferous vegetable intake and type 2 diabetes, dose-response

		Cruciferous vegetables, 100 g/day					
		<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b	
All studies		8	0.96 (0.84-1.09)	80.9	<0.0001		
Duration of follow-up							
	<10 years follow-up	3	0.75 (0.51-1.11)	82.8	0.003	0.20	
	≥10 years follow-up	5	1.07 (0.97-1.18)	67.5	0.02		
Gender							
	Men	2	0.85 (0.42-1.73)	79.6	0.03	0.99	
	Women	4	0.94 (0.76-1.16)	87.4	0		
	Men and women	2	0.91 (0.81-1.03)	0	0.79		
Geographic location							
	Europe	1	0.55 (0.29-1.04)			0.53	
	America	4	1.13 (1.07-1.19)	0	0.53		
	Asia	3	0.75 (0.54-1.05)	83.4	0.002		
	Australia						
Number of cases							
	Cases <1.000	2	0.77 (0.50-1.19)	47.1	0.17	0.14	
	Cases 1.000-<2.000	2	0.68 (0.33-1.39)	90.8	0.001		
	Cases ≥2.000	4	1.09 (1.00-1.19)	61.1	0.05		
Study quality							
	0-3	0				0.02	
	>3-6	1	0.47 (0.33-0.67)				
	>6-8	7	1.04 (0.95-1.14)	62.4	0.01		
Adjustment for confounders							
	Age	Yes	8	0.96 (0.84-1.09)	80.9	<0.0001	NC
		No	0				
	Education	Yes	3	0.64 (0.38-1.08)	85.2	0.001	0.05
		No	5	1.10 (1.03-1.18)	29.5	0.23	
	Ethnicity	Yes	3	1.13 (1.07-1.20)	0	0.75	0.03
		No	5	0.78 (0.62-0.99)	73.1	0.005	
	Family history	Yes	6	1.08 (0.99-1.17)	51.3	0.07	0.15
		No	2	0.67 (0.34-1.30)	91.6	0.001	
	Body mass index	Yes	8	0.96 (0.84-1.09)	80.9	<0.0001	NC
		No	0				
	Waist circumference/WHR	Yes	2	0.48 (0.35-0.66)	0	0.68	0.005
		No	6	1.06 (0.98-1.15)	57.1	0.04	
	Hypertension	Yes	7	0.98 (0.86-1.11)	81.6	<0.0001	0.38
		No	1	0.55 (0.29-1.04)			
	Alcohol	Yes	8	0.96 (0.84-1.09)	80.9	<0.0001	NC
		No	0				
	Smoking	Yes	8	0.96 (0.84-1.09)	80.9	<0.0001	NC
		No	0				
	Physical activity	Yes	8	0.96 (0.84-1.09)	80.9	<0.0001	NC
		No	0				
	Meat consumption	Yes	2	0.67 (0.34-1.30)	91.6	0.001	0.15
		No	6	1.08 (0.99-1.17)	51.3	0.07	
	Soft drink	Yes	1	0.92 (0.80-1.06)			0.96
		No	7	0.96 (0.83-1.11)	81.2	<0.0001	
	Whole grain	Yes	1	0.92 (0.80-1.06)			0.96
		No	7	0.96 (0.83-1.11)	81.2	<0.0001	
	Coffee	Yes	2	0.91 (0.81-1.03)	0	0.79	0.99
		No	6	0.97 (0.84-1.14)	82.8	<0.0001	
	Energy intake	Yes	8	0.96 (0.84-1.09)	80.9	<0.0001	NC
		No	0				

n = number of studies^a *P* for heterogeneity within each subgroup^b *P* for heterogeneity between subgroups with meta-regression analysis

NC not calculatable

Supplemental Table 18. Subgroup analyses of green leafy vegetable intake and type 2 diabetes, dose-response

		Green leafy vegetables, 100 g/day					
		<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b	
All studies		8	0.96 (0.91-1.01)	75.0	<0.0001		
Duration of follow-up							
	<10 years follow-up	3	0.86 (0.76-0.96)	19.0	0.29	0.18	
	≥10 years follow-up	5	0.98 (0.93-1.03)	78.7	0.001		
Gender							
	Men	0					
	Women	3	0.87 (0.81-0.94)	0	0.41	0.06	
	Men and women	5	1.00 (0.94-1.05)	76.2	0.002		
Geographic location							
	Europe	2	0.87 (0.57-1.32)	73.6	0.05	0.66	
	America	3	0.95 (0.88-1.01)	48.5	0.14		
	Asia	3	0.90 (0.70-1.15)	78.2	0.01		
	Australia	0					
Number of cases							
	Cases <1.000	1	0.70 (0.44-1.12)			0.57	
	Cases 1.000-<2.000	3	0.93 (0.80-1.08)	83.2	0.003		
	Cases ≥2.000	4	0.95 (0.86-1.05)	66.3	0.03		
Study quality							
	0-3	0				0.74	
	>3-6	3	0.97 (0.92-1.03)	88.2	<0.0001		
	>6-8	5	0.91 (0.80-1.05)	55.9	0.06		
Adjustment for confounders							
	Age	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				
	Education	Yes	5	0.98 (0.92-1.03)	81.9	<0.0001	0.44
		No	3	0.89 (0.82-0.97)	0	0.47	
	Ethnicity	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				
	Family history	Yes	3	0.89 (0.82-0.97)	0	0.47	0.44
		No	5	0.98 (0.92-1.03)	81.9	<0.0001	
	Body mass index	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				
	Waist circumference/WHR	Yes	1	0.82 (0.72-0.93)			0.18
		No	7	0.98 (0.93-1.02)	71.2	0.002	
	Hypertension	Yes	4	0.92 (0.78-1.08)	67.8	0.03	0.81
		No	4	0.97 (0.92-1.02)	81.9	0.001	
	Alcohol	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				
	Smoking	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				
	Physical activity	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				
	Meat consumption	Yes	3	0.92 (0.79-1.07)	76.0	0.02	0.68
		No	5	0.98 (0.94-1.03)	73.1	0.005	
	Soft drink	Yes	2	0.98 (0.78-1.22)	81.1	0.02	0.63
		No	6	0.96 (0.91-1.01)	77.4	0.001	
	Whole grain	Yes	2	0.98 (0.78-1.22)	81.1	0.02	0.63
		No	6	0.96 (0.91-1.01)	77.4	0.001	
	Coffee	Yes	3	0.86 (0.76-1.14)	70.4	0.03	0.93
		No	5	0.96 (0.91-1.02)	80.2	<0.0001	
	Energy intake	Yes	8	0.96 (0.91-1.01)	75.0	<0.0001	NC
		No	0				

n = number of studies^a *P* for heterogeneity within each subgroup^b *P* for heterogeneity between subgroups with meta-regression analysis

NC not calculatable

Supplemental Table 19. Subgroup analyses of potato (total) intake and type 2 diabetes, dose-response

		Potatoes (total), 100 g/day					
		<i>n</i>	RR (95% CI)	I ² (%)	<i>P</i> _h ^a	<i>P</i> _h ^b	
All studies		8	1.08 (1.02-1.15)	55.4	0.03		
Duration of follow-up							
	<10 years follow-up	3	0.95 (0.78-1.16)	60.1	0.08	0.08	
	≥10 years follow-up	5	1.11 (1.08-1.15)	0	0.43		
Gender							
	Men	1	1.12 (1.04-1.20)			0.64	
	Women	3	1.09 (1.02-1.15)	57.5	0.01		
	Men and women	4	0.94 (0.71-1.24)	71.3	0.02		
Geographic location							
	Europe	1	1.17 (1.02-1.35)			0.20	
	America	4	1.10 (1.05-1.14)	39.5	0.18		
	Asia	2	0.46 (0.19-1.13)	43.1	0.19		
	Australia	1	0.97 (0.81-1.15)				
Number of cases							
	Cases <1.000	3	0.99 (0.74-1.33)	76.6	0.01	0.45	
	Cases 1.000-<2.000	1	1.00 (0.91-1.10)				
	Cases ≥2.000	4	1.11 (1.07-1.15)	6.7	0.36		
Study quality							
	0-3	0				0.38	
	>3-6	1	0.97 (0.81-1.15)				
	>6-8	7	1.09 (1.03-1.16)	56.1	0.03		
Adjustment for confounders							
	Age	Yes	8	1.08 (1.02-1.15)	55.4	0.03	NC
		No	0				
	Education	Yes	2	0.92 (0.72-1.18)	12.0	0.29	0.28
		No	6	1.10 (1.04-1.16)	56.7	0.04	
	Ethnicity	Yes	4	1.10 (1.06-1.15)	10.7	0.34	0.42
		No	4	0.99 (0.78-1.24)	71.7	0.01	
	Family history	Yes	7	1.09 (1.03-1.15)	55.9	0.03	0.36
		No	1	0.65 (0.32-1.32)			
	Body mass index	Yes	8	1.08 (1.02-1.15)	55.4	0.03	NC
		No	0				
	Waist circumference/WHR	Yes	1	0.97 (0.81-1.15)			0.38
		No	7	1.09 (1.03-1.16)	56.1	0.03	
	Hypertension	Yes	2	0.93 (0.69-1.27)	28.2	0.24	0.17
		No	6	1.10 (1.05-1.17)	49.2	0.08	
	Alcohol	Yes	6	1.08 (1.03-1.14)	44.5	0.11	0.65
		No	2	0.61 (0.14-2.73)	83.7	0.01	
	Smoking	Yes	7	1.09 (1.03-1.16)	56.1	0.03	0.38
		No	1	0.97 (0.81-1.15)			
	Physical activity	Yes	7	1.07 (1.00-1.14)	59.1	0.02	0.51
		No	1	1.17 (1.02-1.35)			
	Meat consumption	Yes	1	0.65 (0.32-1.32)			0.36
		No	7	1.09 (1.03-1.15)	55.9	0.03	
	Soft drink	Yes	1	0.65 (0.32-1.32)			0.36
		No	7	1.09 (1.03-1.15)	55.9	0.03	
	Whole grain	Yes	2	0.46 (0.19-1.13)	43.1	0.19	0.09
		No	6	1.09 (1.05-1.14)	36.9	0.16	
	Coffee	Yes	1	0.65 (0.32-1.32)			0.36
		No	7	1.09 (1.03-1.15)	55.9	0.03	
	Energy intake	Yes	8	1.08 (1.02-1.15)	55.4	0.03	NC
		No	0				

n = number of studies^a *P* for heterogeneity within each subgroup^b *P* for heterogeneity between subgroups with meta-regression analysis

NC not calculatable

Supplemental Table 20. World Cancer Research Fund grading criteria

Grading	Criteria
Convincing	<p>A convincing relationship should be robust enough to be highly unlikely to be modified in the foreseeable future as new evidence accumulates. All of the following are generally required:</p> <ul style="list-style-type: none"> - Evidence from more than one study type - Evidence from at least two independent cohort studies - No substantial unexplained heterogeneity within or between study types or in different populations relating to the presence or absence of an association, or direction of effect - Good quality studies to exclude with confidence the possibility that the observed association results from random or systematic error, including confounding, measurement error, and selection bias - Presence of a plausible biological gradient in the association. Such a gradient need not be linear or even in the same direction across different levels of exposure, so long as this can be explained plausibly - Strong and plausible experimental evidence, either from human studies or relevant animal models, that typical human exposures can lead to relevant outcomes
Probable	<p>All of the following are generally required:</p> <ul style="list-style-type: none"> - Evidence from at least two independent cohort studies, or at least five case-control studies - No substantial unexplained heterogeneity within or between study types or in different populations relating to the presence or absence of an association, or direction of effect - Good quality studies to exclude with confidence the possibility that the observed association results from random or systematic error, including confounding, measurement error, and selection bias - Evidence for biological plausibility
Limited - suggestive	<p>All of the following are generally required:</p> <ul style="list-style-type: none"> - Evidence from at least two independent cohort studies, or at least five case-control studies - The direction of effect is generally consistent though some unexplained heterogeneity may be present - Evidence for biological plausibility

Limited - no conclusion	Evidence is so limited that no firm conclusion can be made, but this does not mean that there is evidence of no relationship. The evidence might be graded "limited - no conclusion" for several reasons: <ul style="list-style-type: none"> - limited number of studies - inconsistency of direction of effect - poor quality of studies (e.g. lack of adjustment for known confounders) - or any combination of these factors
Substantial effect on risk unlikely	All of the following are generally required: <ul style="list-style-type: none"> - Evidence from more than one study type - Evidence from at least two independent cohort studies - Summary estimate of effect close to 1.0 for comparison of high versus low exposure categories - No substantial unexplained heterogeneity within or between study types or in different populations - Good quality studies to exclude with confidence the possibility that the absence of association results from random or systematic error, including inadequate power, imprecision or error in exposure measurement, inadequate range of exposure, confounding, and selection bias - Absence of a demonstrable biological gradient (dose response) - Absence of strong and plausible experimental evidence, either from human studies or relevant animal models, that typical human exposures lead to relevant outcomes

Specific upgrading factors:

- 1) Presence of a plausible biological gradient (dose response) in the association. Such a gradient need not be linear or even in the same direction across the different levels of exposure, so long as this can be explained plausibly.
- 2) A particularly large summary effect size (an odds ratio or relative risk of 2.0 or more, depending on the unit of exposure) after appropriate control for confounders.
- 3) Evidence from randomised trials in humans.
- 4) Evidence from appropriately controlled experiments demonstrating one or more plausible and specific mechanisms actually operating in humans.
- 5) Robust and reproducible evidence from experimental studies in appropriate animal models showing that typical human exposures can lead to relevant health outcomes.

Supplemental Table 21. Justification for evidence grading for fruit and vegetables and type 2 diabetes

Requirements for grading of convincing	Fruit and vegetables	Fruits	Vegetables
Statistically significant and robust association	Statistically significant weak inverse association for high vs. low analysis, but this is not robust in influence analyses. The linear and nonlinear dose-response analyses show a non-significant inverse association. Three studies only reported dichotomous results and could not be included in the dose-response analyses.	Statistically significant weak inverse association for high vs. low and nonlinear analysis, borderline significant in linear dose-response, but there is strong evidence of nonlinearity. High vs. low analysis is robust in influence analyses.	No significant association in the high vs. low or linear dose-response analysis, but there is evidence of nonlinearity with a significant reduction at an intake of 100-400 g/d. The lack of association in high vs. low and linear dose-response analyses are not driven by any single studies.
Evidence from at least two independent cohort studies	10 studies (high vs. low) 7 studies (dose-response)	20 studies (high vs. low) 19 studies (dose-response)	17 studies (high vs. low) 15 studies (dose-response)
No substantial unexplained heterogeneity within or between study types or in different populations relating to the presence or absence of an association, or direction of effect	There is no heterogeneity in the high vs. low analysis and low heterogeneity in the dose-response analysis. The inverse association in high vs. low analyses persists in several, but not all subgroup analyses.	Low heterogeneity in high vs. low analysis and moderate to high heterogeneity in the linear dose-response analysis. Most studies show risk estimates in the direction of reduced risk for the high vs. low comparison, although only four studies show a statistically significant reduction in risk, but confidence intervals are somewhat wide and overlapping for several studies. No studies show a significant increase in risk.	Moderate to high heterogeneity in the high vs. low and dose-response analyses. Eleven of 17 studies reported risk estimates in the direction of reduced risk, but only two of these are statistically significant. No studies reported a significant increase in risk, although some studies also report relative risks non-significantly above 1.0.
Good quality studies to exclude with confidence the possibility that the observed association results from random or systematic error,	No indication of publication bias Results persisted in several, although not all subgroup analyses. However, there was no indication of between	No indication of publication bias. Results are in general consistent in subgroup analyses, although for some subgroups there is low power due to few studies. There is little	Egger's test was significant for the dose-response analysis, but not for the high vs. low analysis. Subgroup analyses based on high vs. low and dose-response analyses

<p>including confounding, measurement error, and selection bias</p>	<p>subgroup heterogeneity with meta-regression analyses.</p> <p>No studies corrected for measurement error, but one study (EPIC-InterAct) using biomarkers of fruit and vegetable intakes reported substantially stronger associations than FFQ-based fruit and vegetable intakes.</p> <p>All studies excluded prevalent type 2 diabetes cases at baseline. Exposed and non-exposed participants were selected from the same populations.</p>	<p>indication of significant between subgroup heterogeneity. Exceptions are subgroup with adjustment for family history of diabetes, which shows a significant inverse association and the subgroup of studies with adjustment for waist measures of adiposity, which shows no association. However, both general and abdominal adiposity could potentially be mediators.</p> <p>No studies corrected for measurement error, but one study (EPIC-InterAct) using biomarkers of fruit and vegetable intakes reported substantially stronger associations than FFQ-based fruit and vegetable intakes.</p> <p>All studies excluded prevalent type 2 diabetes cases at baseline. Exposed and non-exposed participants were selected from the same populations.</p>	<p>show consistently no significant association.</p> <p>No studies corrected for measurement error, but one study (EPIC-InterAct) using biomarkers of fruit and vegetable intakes reported substantially stronger associations than FFQ-based fruit and vegetable intakes.</p> <p>All studies excluded prevalent type 2 diabetes cases at baseline. Exposed and non-exposed participants were selected from the same populations.</p>
<p>Presence of a plausible biological gradient in the association. Such a gradient need not be linear or even in the same direction across different levels of exposure, so long as this can be explained plausibly</p>	<p>Some indication of a weak dose-response relationship up to 300-500 g/d and the test for nonlinearity is not significant ($p=0.13$), although there is no further reductions in risk up to 800 g/d.</p>	<p>There is strong evidence of nonlinearity with a reverse J-shaped or U-shaped association. Several subtypes of fruit are inversely associated with type 2 diabetes, while a few fruit subtypes (cantaloupe, watermelon) are slightly positively associated with type 2 diabetes. Although it is not clear whether some of these are due to selective reporting or if there is a real increase in risk, different directions of risk between fruit subtypes could potentially explain the observed U-shaped dose-response relationship.</p>	<p>There is evidence of nonlinearity ($p=0.004$) and a slight reverse J-shaped or U-shaped association with a significant reduction in risk at intakes of 100-400 g/d, but the association is non-significant at higher intakes.</p>

<p>Strong and plausible experimental evidence, either from human studies or relevant animal models, that typical human exposures can lead to relevant outcomes</p>	<p>Fruits and vegetables are important sources of dietary fiber, for which there is convincing evidence of a protective effect on adiposity and weight gain, which are major risk factors for type 2 diabetes.</p> <p>There is also considerable evidence from observational studies that a high fruit and vegetable intake reduces weight gain and prevents the development of overweight and obesity. Results from randomized trials show weaker associations between fruit and vegetable intake and weight gain, but are of short duration and there may be issues with compliance.</p> <p>Fruits and vegetables have a high content of various antioxidants, flavonoids and phytochemicals that may contribute towards reduced type 2 diabetes risk. Flavonoids have for example in animal and in vitro studies been shown to regulate carbohydrate digestion, insulin secretion, insulin sensitivity, insulin signaling, and glucose uptake in insulin-sensitive issues through various intracellular signaling pathways. Flavonoids may also protect insulin-producing beta-cells from inflammatory cytokine-induced cytotoxicity, promote beta-cell function and viability, and protect beta-cells against apoptosis.</p>	<p>Fruits are an important source of dietary fiber, for which there is convincing evidence of a protective effect on adiposity and weight gain, which are major risk factors for type 2 diabetes.</p> <p>There is also considerable evidence from observational studies that a high fruit intake reduces weight gain and prevents the development of overweight and obesity. Results from randomized trials show weaker associations between fruit intake and weight gain, but are of short duration and there may be issues with compliance.</p> <p>Fruits have a high content of various antioxidants, flavonoids and phytochemicals that may contribute towards reduced type 2 diabetes risk. Flavonoids have for example in animal and in vitro studies been shown to regulate carbohydrate digestion, insulin secretion, insulin sensitivity, insulin signaling, and glucose uptake in insulin-sensitive issues through various intracellular signaling pathways. Flavonoids may also protect insulin-producing beta-cells from inflammatory cytokine-induced cytotoxicity, promote beta-cell function and viability, and protect beta-cells against apoptosis.</p>	<p>Vegetables are important sources of dietary fiber, for which there is convincing evidence of a protective effect on adiposity and weight gain, which are major risk factors for type 2 diabetes.</p> <p>There is also considerable evidence from observational studies that a high vegetable intake reduces weight gain and prevents the development of overweight and obesity. Results from randomized trials show weaker associations between vegetable intake and weight gain, but are of short duration and there may be issues with compliance.</p> <p>Vegetables have a high content of various antioxidants, flavonoids and phytochemicals that may contribute towards reduced type 2 diabetes risk. Flavonoids have for example in animal and in vitro studies been shown to regulate carbohydrate digestion, insulin secretion, insulin sensitivity, insulin signaling, and glucose uptake in insulin-sensitive issues through various intracellular signaling pathways. Flavonoids may also protect insulin-producing beta-cells from inflammatory cytokine-induced cytotoxicity, promote beta-cell function and viability, and protect beta-cells against apoptosis.</p>
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<p>Final grading and justification for overall assessment.</p>	<p>Limited-suggestive evidence for reduced risk with higher fruit and vegetable intake.</p> <p>Justification: Primarily based on significant high vs. low analysis and marginally significant nonlinear dose-response analysis. Results are in general consistent across several, but not all subgroups. Low heterogeneity, no publication bias, no indication of selection bias. Biologically plausible mechanisms exist, but a more precise and robust summary estimate and more details on mechanisms could have led to higher grading.</p>	<p>Probable evidence for reduced type 2 diabetes risk with higher fruit intake.</p> <p>Justification: Significant high vs. low and nonlinear dose-response analysis with evidence of nonlinearity (therefore less emphasis on linear dose-response analysis). Low heterogeneity, robust results in many subgroup analyses as well as in influence analyses (high vs. low comparison). No publication, no indication of selection bias. The overall data for fruits are also consistent with the results for several subtypes of fruits, which show inverse associations (although the number of studies is limited). Biologically plausible mechanisms exist, but more details on mechanisms could have led to higher grading.</p>	<p>Limited-no conclusion evidence for reduced risk of type 2 diabetes with higher vegetable intake.</p> <p>Justification: This is largely based on the lack of association in both high vs. low and linear dose-response analysis. Although there is indication of nonlinearity in the nonlinear analysis, and a weak association cannot be excluded, there is insufficient evidence at present for a higher grading. The null results are robust in subgroup and influence analyses. There is some heterogeneity and indication of publication bias in the dose-response analysis, but in sensitivity analyses this is not substantially affecting the results. No indication of selection bias. None of the vegetable subtypes showed significant inverse associations, although power may be low because of a limited number of studies. Biologically plausible mechanisms by which vegetables could reduced type 2 diabetes risk exist.</p>
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Supplemental Table 22. Evidence grading for fruit and vegetables and subtypes and type 2 diabetes

	Reduced risk	Increased risk
Convincing	-	-
Probable	Fruits	-
Limited-suggestive	Fruits and vegetables combined, blueberries, prunes, grapes and raisins, apples/pears, apples, grapefruit	Fruit juice, fruit drinks, total potatoes, brussels sprouts, cauliflower, cantaloupe
Limited - no conclusion	Vegetables, peaches/plums/apricots, bananas, berries, oranges, citrus fruits, watermelon, strawberries, 100% fruit juice, boiled potatoes, allium vegetables, yellow vegetables, cruciferous vegetables, green leafy vegetables, mushrooms, kale/mustard/chard greens, broccoli, cabbage, tomatoes	

For fruit and vegetable subtypes these judgments were largely based on the limited number of studies published. A larger number of studies were published on potatoes and fruit juice and fruit drinks, however, results were not robust in influence analyses and across all subgroup analyses, thus further studies are needed before an upgrade of the evidence grading can be made. There is supporting evidence of biological plausibility for several fruit and vegetable subtypes (e.g. blueberries, apples, grapes/raisins, grapefruit, fruit juice, fruit drinks).