Supplement for

Madsen H, Sen A, Aune D. Fruit and vegetable consumption and the risk of hypertension: a systematic review and meta-analysis of prospective studies. Eur J Nutr https://doi.org/10.1007/s00394-023-03145-5

Supplementary text:

PubMed search

1) fruits OR vegetables OR fruit OR vegetable OR berry OR berries OR strawberries OR blueberries OR citrus OR “citrus fruits” OR orange OR apples OR pears OR banana OR cruciferae OR “cruciferous vegetables” OR broccoli OR cauliflower OR cabbages OR “allium vegetables” OR onion OR garlic OR tomato OR tomatoes OR potato OR "french fries" OR juice OR food OR "food groups"

2) hypertension OR "blood pressure"

3) “case-control” OR cohort OR cohorts OR prospective OR longitudinal OR retrospective OR “follow-up” OR “cross-sectional” OR “population-based” OR "relative risk" OR "hazard ratio" OR "incidence rate ratio" OR "odds ratio"

4) 1 AND 2 AND 3

Embase search

1) fruits OR vegetables OR fruit OR vegetable OR berry OR berries OR strawberries OR blueberries OR citrus OR citrus fruits OR orange OR apples OR pears OR banana OR cruciferae OR cruciferous vegetables OR broccoli OR cauliflower OR cabbages OR allium vegetables OR onion OR garlic OR tomato OR tomatoes OR potato OR french fries OR juice OR food OR food groups

2) fruits/ OR vegetables/ OR fruit/ OR vegetable/ OR berry/ OR berries/ OR strawberries/ OR blueberries/ OR citrus/ OR citrus fruits/ OR Orange/ OR apples/ OR pears/ OR banana/ OR cruciferae/ OR cruciferous vegetables/ OR broccoli/ OR cauliflower/ OR cabbages/ OR allium vegetables/ OR onion/ OR garlic/ OR tomato/ OR tomatoes/ OR potato/ OR french fries/ OR juice/ OR food/ OR food groups/

3) hypertension OR blood pressure

4) hypertension/ OR blood pressure/

5) case-control OR cohort OR cohorts OR prospective OR longitudinal OR retrospective OR follow-up OR cross-sectional OR hazard ratio OR incidence rate ratio OR relative risk OR odds ratio

6) 1 OR 2

7) 3 OR 4

8) 6 AND 7 AND 5

Supplementary table 1. List of studies excluded studies and exclusion reasons

Exclusion reason	Reference number
Abstract only publications	(1-7)
Case-control study	(8-17)
Case only study	(18)
Cross-sectional study	(19-107)
Duplicate	(108)
Intervention study (cross-sectional surveys included prevalent cases)	(109)
Meta-analysis	(110-114)
News	(115)
No risk estimates	(116-118)
Not relevant data	(119-168)
Not relevant exposure	(169-274)
Not relevant outcome	(275-321)
Outcome was continuous blood pressure or blood pressure trajectory	(322-334)
Patients with hypertension	(335-337)
Review	(338-344)
Study in adolescents (not adult population)	(345)

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Supplementary table 2. Cohort studies of fruit and vegetable intake and incident hypertension

Author, publication year, country/ region	Study name	Follow-up period	Study size, gender, age, number of cases	Dietary assess-ment	Exposure	Quantity	RR (95% CI)	Adjustment for confounders
Steffen LM et al, 2005, USA	The Coronary Artery Risk Development in Young Adults (CARDIA) Study	1985-2000, 1986-2001, 15 years follow-up	4304 (1183 white women, 989 white men, 1249 black women, 883 black men), age 18- 45 years: 591 cases of incident hypertension and 997 cases of elevated BP	Diet history interview	Fresh, dried and canned fruit and fruit juice Fresh, frozen, and canned vegetables	<0.2 times/day 0.2-0.5 0.5-0.9 0.9-1.5 >1.5 <1.2 times/day 1.2-1.8 1.8-2.4 2.4-3.3 >3.3	1.00 0.88 (0.72-1.06) 0.83 (0.68-1.01) 0.85 (0.69-1.04) 0.75 (0.60-0.94) 1.00 0.83 (0.68-1.01) 0.94 (0.77-1.15) 0.78 (0.62-0.97) 0.94 (0.75-1.19)	Age, sex, race, center, education, energy intake, physical activity, alcohol intake, smoking, vitamin supplement use
Nunez-Cordoba JM et al, 2008, Spain	Seguimiento University of Navarra cohort (SUN)	1999-2006, 4.1 years follow-up	8594 participants (5338 women, 3256 men), age 20-95 years: 426 cases	Validated semiquant itative FFQ, 136 items	Vegetables Fruit Fruit and vegetables	≤1.0 serv./day 1.1-2.0 2.1-3.0 3.1-4.0 >4.0 ≤1.0 serv./day 1.1-2.0 2.1-3.0 3.1-4.0 >4.0 ≤2.0 serv./day 2.1-4.0 4.1-4.9 ≥5.0	1.00 1.00 (0.74-1.34) 0.92 (0.66-1.27) 1.03 (0.70-1.52) 0.87 (0.55-1.39) 1.00 0.86 (0.66-1.13) 0.94 (0.70-1.27) 1.02 (0.72-1.45) 0.85 (0.59-1.22) 1.00 0.86 (0.63-1.16) 0.86 (0.60-1.24) 0.78 (0.55-1.10)	Age, gender, total energy intake, BMI, physical activity, alcohol, family history of hypertension, sodium intake, low-fat dairy intake, whole grains intake, fish intake and smoking
Camoes M et al, 2010, Portugal	EPIPorto study	1999-2008, 3.8 years follow-up	549 participants, age >40 years: 160 cases	Validated semi-quantitativ e FFQ 82 items	Fruits, vegetables and pulses	<388.9/<332.9 g/d (w/m) 388.9/332.9-548.5/510.1 >548.5/>510.1	1.00 0.83 (0.57-1.21) 0.61 (0.40-0.93)	Age, sex, education, BMI, physical activity level and baseline total energy intake
Tsubota-Utsugi M et	The Ohasama study	1998-NA, 4.1 years follow-	745 participants, age	Validated 141-item	Fruit	≤38.40 g/day 38.41-63.80	1.00 0.64 (0.36-1.15)	Age, sex, BMI, frequency of exercise, smoking status,

al, 2011, Japan		up	<35 years: 222 cases	FFQ	Vegetables	63.8–100.02 ≥100.03 g/day ≤143.41 g/day 143.42–211.55 211.56–282.75 ≥282.76	0.70 (0.39-1.26) 0.40 (0.21-0.74) 1.00 0.96 (0.52-1.75) 1.11 (0.60-2.05) 0.75 (0.40-1.38)	alcohol consumption, energy-adjusted fat and sodium consumption, total energy, baseline systolic home BP, and a past history of diabetes, hypercholesterolaemia and cardiovascular disease
Wang L et al, 2011, USA	Women's Health Study (WHS)	1992-2007, 12.9 years follow-up	28082 women, age 39-89 years: 13633 cases	131-item validated semiquantitative FFQ	Total fruits and vegetables Total fruits Total vegetables Apples Bananas 	<2 serv./day 2-<4 4-<6 6-<8 ≥8 <0.5 serv./day 0.5-<1.5 1.5-<2 2-<3 ≥3 <1.5 serv./day 1.5-<2.5 2.5-<4 4-<5 ≥5 None/rarely 1–3 serv./month 1 serv./week 2–4 >4 None/rarely 1–3 serv./month 1 serv./week 2–4 >4	1.00 1.03 (0.95-1.12) 1.02 (0.94-1.11) 1.04 (0.95-1.14) 1.03 (0.93-1.13) 1.00 0.99 (0.92-1.06) 0.98 (0.90-1.06) 0.98 (0.91-1.06) 0.95 (0.88-1.04) 1.00 0.95 (0.89-1.01) 0.99 (0.93-1.05) 0.99 (0.92-1.07) 0.98 (0.91-1.06) 1.00 0.95 (0.89-1.02) 0.93 (0.86-0.99) 0.90 (0.84-0.96) 0.91 (0.85-0.99) 1.00 1.02 (0.96-1.09) 1.02 (0.96-1.10) 1.02 (0.96-1.09) 1.02 (0.95-1.10	Age, race, total energy intake, and randomized treatment, smoking, daily alcohol intake, exercise, BMI, postmenopausal status, postmenopausal hormone use, multivitamin supplement use, history of diabetes, history of hypercholesterolemia, intake of whole grains, red meats, low-fat dairy products, and nuts, for fruit intake also adjusted for vegetable intake and vice versa

					Oranges	None/rarely	1.00	
						1–3 serv./month	0.98 (0.94-1.03)	
						1	0.96 (0.90-1.01)	
						2–4	0.95 (0.90-1.00)	
						>4	0.91 (0.85-0.98)	
					Strawberries	None/rarely	1.00	
						1–3 serv./month	1.00 (0.96-1.04)	
						1 serv./week	1.03 (0.97-1.08)	
						> 1	1.07 (0.99-1.15)	
					Blueberries	None/rarely	1.00	
						1–3 serv./month	0.97 (0.93-1.01)	
						≥1	1.02 (0.96-1.08)	
					Green-leafy vegetables	<0.2 serv./day	1.00	
						0.2-<0.4	0.99 (0.93-1.05)	
						0.4-<0.6	0.98 (0.93-1.04)	
						0.6-<1.0	0.96 (0.90-1.02)	
						≥1.0	0.94 (0.88-1.01)	
					Cruciferous vegetables	<0.2 serv./day	1.00	
						0.2-<0.4	1.06 (1.01-1.12)	
						0.4-<0.6	1.05 (0.99-1.11)	
						0.6-<1.0	1.09 (1.02-1.16)	
						≥1.0	1.14 (1.06-1.23)	
					Dark-yellow vegetables	<0.2 serv./day	1.00	
						0.2-<0.4	0.96 (0.91-1.01)	
						0.4-<0.6	0.99 (0.93-1.05)	
						0.6-<1.0	0.93 (0.87-0.99)	
						≥1.0	0.88 (0.82-0.95)	
					Onions	<0.1 serv./day	1.00	
						0.1-<0.3	1.06 (1.01-1.11)	
						0.3-<0.5	1.04 (0.99-1.10)	
						0.5-<1.0	1.09 (1.03-1.15)	
						≥1.0	1.07 (1.00-1.15)	
					Tomatoes	<0.1 serv./day	1.00	
						0.1-<0.3	1.02 (0.94-1.11)	
						0.3-<0.5	1.01 (0.93-1.11)	
						0.5-<1.0	1.02 (0.93-1.11)	
						≥1.0	1.05 (0.95-1.16)	

Weng LC et al, 2013, USA	Atherosclerosis Risk in Communities Study	1987-1989 - 1996-1998, 9 years follow-up	9913 men and women, age 45-64 years: 2853 hypertension cases	Validated FFQ, 66 food items	Fruits Vegetables 	1 2 3 4 5 1 2 3 4 5	1.00 1.06 (0.94-1.19) 0.98 (0.87-1.10) 1.08 (0.96-1.22) 1.06 (0.93-1.20) 1.00 0.97 (0.86-1.09) 0.94 (0.83-1.06) 0.97 (0.85-1.09) 0.96 (0.84-1.09)	Age, sex, race, education, center, energy intake, added salt, physical activity, smoking, BMI, BMI change, diabetes mellitus
Golzarand M et al, 2015, Iran	Tehran Lipid and Glucose Study	2006-2009, 2008-2011, 3 years follow-up	1546 participants, 20-70 years: 265 cases	Validated semiquantitative FFQ,168-item	Fruit Vegetables 	191 g/d 312 420 548 220 g/d 275 311 350	1.00 0.86 (0.57-1.30) 0.93 (0.60-1.44) 0.86 (0.48-1.54) 1.00 0.88 (0.59-1.33) 0.88 (0.57-1.35) 0.68 (0.44-1.15)	Age, sex, smoking status, physical activity, socioeconomic status, BMI, energy intake, total fiber, sodium, potassium, vitamins A, C and E
Borgi L et al, 2016, USA	Nurses' Health Study (NHS)	1984-2010, 26 years follow-up	62175 women, age 30-55 years: 35375 cases	Validated semiquantitative FFQ, >130 items	Total fruit Total vegetables Total fruit and vegetables Raisins or grapes Apples or pears 	≤4 serv./week 5-6 1 serv./day 2-3 ≥4 ≤4 serv./ week 5-6 1 serv./day 2-3 ≥4 ≤1 serv./day 2-3 4-5 ≥6 <1 serv./month 1-3 1-3 serv./week ≥4 <1 serv./month 1-3 1-3 serv./week	1.00 0.97 (0.93-1.01) 0.95 (0.92-0.99) 0.94 (0.91-0.98) 0.96 (0.88-1.03) 1.00 0.95 (0.77-1.16) 0.90 (0.76-1.07) 0.89 (0.75-1.05) 0.87 (0.73-1.03) 1.00 0.90 (0.84-0.95) 0.88 (0.83-0.94) 0.85 (0.80-0.91) 1.00 0.97 (0.94-0.99) 0.93 (0.90-0.96) 0.92 (0.86-0.97) 1.00 0.94 (0.89-0.99) 0.93 (0.88-0.99)	Age, race/ethnicity, body mass index, current smoking status, physical activity, weight change per food frequency questionnaire cycle, menopausal status, alcohol intake, analgesic use (nonsteroidal anti-inflammatory drugs, acetaminophen, aspirin), family history of hypertension, total energy intake, animal flesh intake (combination of processed and unprocessed red meat, poultry and seafood), whole grains, sugar-sweetened beverage intake, artificially sweetened diet beverage intake

						≥4	0.90 (0.85-0.96)	
					Strawberries	<1 serv./month	1.00	
						1-3	0.96 (0.93-0.99)	
						1-3 serv./week	0.96 (0.92-0.99)	
						≥4	0.99 (0.91-1.09)	
					Blueberries	<1 serv./month	1.00	
						1-3	0.98 (0.96 -1.00)	
						1-3 serv./week	0.94 (0.89 -0.98)	
						≥4	0.89 (0.75 -1.07)	
					Avocado	<1 serv./month	1.00	
						1-3	0.98 (0.95-1.02)	
						1-3 serv./week	0.85 (0.76-0.95)	
						≥4	0.99 (0.64-1.54)	
					Broccoli	<1 serv./month	1.00	
						1-3	1.03 (0.97 -1.09)	
						1-3 serv./week	1.00 (0.94 -1.07)	
						≥4	0.95 (0.88 -1.03)	
					Cauliflower	<1 serv./month	1.00	
						1-3	1.01 (0.98 -1.05)	
						1-3 serv./week	1.06 (1.01 -1.10)	
						≥4	1.10 (0.99 -1.22)	
					Brussel Sprouts	<1 serv./month	1.00	
						1-3	1.02 (1.00 -1.05)	
						1-3 serv./week	1.07 (1.02 -1.13)	
						≥4	1.31 (0.98 -1.75)	
					Carrots	<1 serv./month	1.00	
						1-3	1.01 (0.94 -1.08)	
						1-3 serv./week	0.98 (0.91 -1.05)	
						≥4	0.97 (0.90 -1.04)	
					Cantaloupe	<1 serv./month	1.00	
						1-3	1.02 (0.98-1.05)	
						1-3 serv./week	1.06 (1.02-1.10)	
						≥4	1.10 (1.03-1.18)	
					Corn	<1 serv./month	1.00	
						1-3	1.02 (0.98-1.06)	
						1-3 serv./week	1.03 (0.98-1.07)	
						≥4	0.93 (0.82-1.05)	
					Yams or sweet potatoes	<1 serv./month	1.00	
						1-3	1.01 (0.99-1.03)	
						1-3 serv./week	1.01 (0.95-1.07)	

						≥4	0.88 (0.62-1.24)	
					Lettuce	<1 serv./month	1.00	
						1-3	1.07 (0.92-1.24)	
						1-3 serv./week	1.05 (0.91-1.21)	
						≥4	1.03 (0.89-1.19)	
					Cabbage	<1 serv./month	1.00	
						1-3	1.00 (0.97-1.04)	
						1-3 serv./week	1.02 (0.98-1.06)	
						≥4	1.01 (0.90-1.14)	
					Eggplant or zucchini	<1 serv./month	1.00	
						1-3	0.98 (0.95-1.01)	
						1-3 serv./week	0.99 (0.96-1.03)	
						≥4	1.00 (0.94-1.07)	
					Green pepper	<1 serv./month	1.00	
						1-3	1.02 (0.99-1.05)	
						1-3 serv./week	1.02 (0.98-1.05)	
						≥4	0.98 (0.92-1.04)	
					Tomatoes	<1 serv./month	1.00	
						1-3	0.97 (0.90-1.05)	
						1-3 serv./week	1.01 (0.93-1.08)	
						≥4	1.00 (0.93-1.08)	
					Onions	<1 serv./month	1.00	
						1-3	0.98 (0.96-1.01)	
						1-3 serv./week	0.97 (0.93-1.01)	
						≥4	0.92 (0.84-1.01)	

Borgi L et al, 2016, USA	Nurses' Health Study II (NHS ll)	1991-2011, 20 years follow-up	88475 women, age 25-42 years: 25246 cases	Validated semiquantitative FFQ, >130 items	Total fruit	≤4 serv./week	1.00	Age, race/ethnicity, body mass index, current smoking status, physical activity, weight change per food frequency questionnaire cycle, menopausal status, alcohol intake, current oral contraceptive use, analgesic use (nonsteroidal anti-inflammatory drugs, acetaminophen, aspirin), family history of hypertension, total energy intake, animal flesh intake (combination of processed and unprocessed red meat, poultry and seafood), whole grains, sugar-sweetened beverage intake, artificially sweetened diet beverage intake.
						5-6	1.03 (0.99-1.07)	
						1 serv./day	0.97 (0.94-1.01)	
						2-3	0.91 (0.87-0.95)	
						≥4	0.91 (0.81-1.02)	
					Total vegetables	≤4 serv./ week	1.00	
						5-6	1.01 (0.86-1.18)	
						1 serv./day	0.96 (0.84-1.09)	
						2-3	0.97 (0.85-1.11)	
						≥4	1.01 (0.88-1.15)	
					Total fruit and vegetables	≤1 serv./day	1.00	
						2-3	0.97 (0.92-1.03)	
						4-5	0.95 (0.89-1.00)	
						≥6	0.94 (0.88-0.99)	
					Raisins or grapes	<1 serv./month	1.00	
						1-3	0.99 (0.96-1.02)	
						1-3 serv./week	0.94 (0.91-0.98)	
						≥4	0.82 (0.75-0.90)	
					Apples or pears	<1 serv./month	1.00	
						1-3	0.96 (0.91-1.02)	
						1-3 serv./week	0.95 (0.90-1.01)	
						≥4	0.93 (0.87-0.99)	
					Strawberries	<1 serv./month	1.00	
						1-3	1.03 (0.99 -1.07)	
						1-3 serv./week	1.02 (0.98 -1.07)	
						≥4	1.02 (0.93 -1.12)	
					Blueberries	<1 serv./month	1.00	
						1-3	0.96 (0.93 -0.99)	
						1-3 serv./week	0.95 (0.90 -0.99)	
						≥4	0.90 (0.76 -1.07)	
					Avocado	<1 serv./month	1.00	
						1-3	0.95 (0.92-0.98)	
						1-3 serv./week	0.91 (0.84-0.99)	
						≥4	0.77 (0.49-1.19)	
					Broccoli	<1 serv./month	1.00	
						1-3	0.98 (0.92 -1.04)	
						1-3 serv./week	0.95 (0.89 -1.01)	
						≥4	0.94 (0.86 -1.02)	

					Cauliflower	<1 serv./month	1.00	
						1-3	0.99 (0.96 -1.02)	
						1-3 serv./week	1.06 (1.02 -1.11)	
						≥4	1.04 (0.92 -1.17)	
					Brussel Sprouts	<1 serv./month	1.00	
						1-3	1.01 (0.98 -1.04)	
						1-3 serv./week	1.03 (0.97 -1.10)	
						≥4	0.98 (0.73 -1.30)	
					Carrots	<1 serv./month	1.00	
						1-3	0.98 (0.92 -1.06)	
						1-3 serv./week	0.96 (0.89 -1.03)	
						≥4	0.94 (0.87 -1.01)	
					Cantaloupe	<1 serv./month	1.00	
						1-3	1.03 (0.99-1.06)	
						1-3 serv./week	1.04 (1.00-1.09)	
						≥4	0.93 (0.80-1.08)	
					Corn	<1 serv./month	1.00	
						1-3	1.07 (1.01-1.14)	
						1-3 serv./week	1.09 (1.03-1.16)	
						≥4	1.12 (1.01-1.23)	
					Yams or sweet potatoes	<1 serv./month	1.00	
						1-3	1.02 (0.99-1.05)	
						1-3 serv./week	1.11 (1.04-1.18)	
						≥4	0.99 (0.70-1.41)	
					Lettuce	<1 serv./month	1.00	
						1-3	1.02 (0.89-1.17)	
						1-3 serv./week	0.99 (0.87-1.12)	
						≥4	0.99 (0.87-1.13)	
					Cabbage	<1 serv./month	1.00	
						1-3	1.02 (0.99-1.05)	
						1-3 serv./week	1.03 (0.98-1.08)	
						≥4	1.03 (0.88-1.20)	
					Eggplant or zucchini	<1 serv./month	1.00	
						1-3	0.97 (0.94-1.00)	
						1-3 serv./week	0.95 (0.91-0.99)	
						≥4	0.97 (0.89-1.06)	
					Green pepper	<1 serv./month	1.00	
						1-3	1.02 (0.98-1.05)	
						1-3 serv./week	1.01 (0.97-1.05)	
						≥4	0.99 (0.93-1.05)	

					Tomatoes	<1 serv./month 1-3 1-3 serv./week ≥4	1.00 0.99 (0.93-1.04) 1.04 (0.98-1.09) 1.03 (0.97-1.10)	
					Onions	<1 serv./month 1-3 1-3 serv./week ≥4	1.00 1.01 (0.98-1.04) 0.98 (0.95-1.02) 0.99 (0.93-1.06)	
Borgi L et al, 2016, USA	Health Professionals Follow-up Study (HPFS)	1986-2010, 24 years follow-up	36803 men, age 40-75 years: 16752 cases	Validated semiquantitative FFQ, >130 items	Total fruit	≤4 serv./week 5-6 1 serv./day 2-3 ≥4	1.00 0.95 (0.89-1.00) 0.92 (0.88-0.97) 0.92 (0.87-0.97) 0.88 (0.81-0.97)	Age, race/ethnicity, body mass index, current smoking status, physical activity, weight change per food frequency questionnaire cycle, alcohol intake, analgesic use (nonsteroidal anti-inflammatory drugs, acetaminophen, aspirin), family history of hypertension, total energy intake, animal flesh intake (combination of processed and unprocessed red meat, poultry and seafood), whole grains, sugar-sweetened beverage intake, artificially sweetened diet beverage intake.
					Total vegetables	≤4 serv./ week 5-6 1 serv./day 2-3 ≥4	1.00 0.96 (0.77-1.19) 0.92 (0.77-1.11) 0.94 (0.79-1.13) 0.93 (0.78-1.12)	
					Total fruit and vegetables	≤1 serv./day 2-3 4-5 ≥6	1.00 0.93 (0.85-1.01) 0.91 (0.83-0.98) 0.89 (0.81-0.97)	
					Raisins or grapes	<1 serv./month 1-3 1-3 serv./week ≥4	1.00 0.99 (0.96-1.04) 0.98 (0.93-1.02) 1.00 (0.93-1.07)	
					Apples or pears	<1 serv./month 1-3 1-3 serv./week ≥4	1.00 0.97 (0.91-1.04) 0.96 (0.89-1.03) 0.93 (0.86-1.00)	
					Strawberries	<1 serv./month 1-3 1-3 serv./week ≥4	1.00 0.98 (0.94 -1.02) 1.03 (0.97 -1.09) 1.00 (0.85 -1.18)	
					Blueberries	<1 serv./month 1-3 1-3 serv./week ≥4	1.00 0.95 (0.92 -0.99) 0.97 (0.90 -1.05) 1.03 (0.81 -1.30)	
					Avocado	<1 serv./month 1-3	1.00 0.99 (0.95-1.02)	

						1-3 serv./week	0.95 (0.88-1.02)	
						≥4	0.98 (0.76-1.26)	
					Broccoli	<1 serv./month	1.00	
						1-3	0.96 (0.90 -1.03)	
						1-3 serv./week	0.95 (0.89 -1.02)	
						≥4	0.94 (0.84 -1.05)	
					Cauliflower	<1 serv./month	1.00	
						1-3	0.99 (0.95 -1.03)	
						1-3 serv./week	0.97 (0.92 -1.03)	
						≥4	1.02 (0.88 -1.19)	
					Brussel Sprouts	<1 serv./month	1.00	
						1-3	1.03 (0.99 -1.06)	
						1-3 serv./week	0.99 (0.93 -1.06)	
						≥4	1.46 (1.10 -1.93)	
					Carrots	<1 serv./month	1.00	
						1-3	0.97 (0.90 -1.06)	
						1-3 serv./week	0.96 (0.89 -1.05)	
						≥4	0.94 (0.86 -1.03)	
					Cantaloupe	<1 serv./month	1.00	
						1-3	1.05 (1.01-1.10)	
						1-3 serv./week	1.08 (1.02-1.14)	
						≥4	1.08 (0.97-1.19)	
					Corn	<1 serv./month	1.00	
						1-3	0.97 (0.91-1.02)	
						1-3 serv./week	0.99 (0.93-1.06)	
						≥4	1.09 (0.95-1.25)	
					Yams or sweet potatoes	<1 serv./month	1.00	
						1-3	1.00 (0.97-1.04)	
						1-3 serv./week	0.99 (0.93-1.07)	
						≥4	0.77 (0.56-1.05)	
					Lettuce	<1 serv./month	1.00	
						1-3	0.89 (0.78-1.01)	
						1-3 serv./week	0.86 (0.76-0.97)	
						≥4	0.85 (0.76-0.96)	
					Cabbage	<1 serv./month	1.00	
						1-3	1.00 (0.96-1.05)	
						1-3 serv./week	1.00 (0.95-1.05)	
						≥4	1.15 (1.00-1.31)	
					Eggplant or zucchini	<1 serv./month	1.00	
						1-3	0.99 (0.95-1.03)	

					Green pepper Tomatoes Onions	1-3 serv./week ≥4 <1 serv./month 1-3 1-3 serv./week ≥4 <1 serv./month 1-3 1-3 serv./week ≥4 <1 serv./month 1-3 1-3 serv./week ≥4	0.99 (0.94-1.04) 0.99 (0.90-1.08) 1.00 0.99 (0.96-1.04) 1.02 (0.97-1.06) 1.04 (0.96-1.04) 1.00 0.97 (0.88-1.06) 0.95 (0.87-1.04) 0.96 (0.87-1.06) 1.00 1.03 (0.99-1.07) 1.03 (0.97-1.09) 0.94 (0.82-1.07)	
Borgi L et al, 2016, USA	NHS	1984-2012, 28 years follow-up	62175 women, age 30-55 years: 35728 cases	Validated semiquantitative FFQ	Potatoes (baked, boiled or mashed)	≤1 serv./month 1-3 1-3 serv./week ≥4	1.00 1.07 (0.97-1.19) 1.12 (1.01-1.24) 1.13 (1.02-1.26)	Age, race/ethnicity (white, African-American, Asian, Hispanic, other), BMI, current smoking status, physical activity, weight change per FFQ cycle, menopausal status, alcohol intake, analgesic use (non-steroidal anti-inflammatory drugs, acetaminophen (paracetamol, aspirin), family history of hypertension, total energy intake, animal flesh intake (combination of processed and unprocessed red meat, poultry, and seafood), whole grains, sugar sweetened drink intake, artificially sweetened diet drink intake, total fruit, total vegetables
Borgi L et al, 2016, USA	NHS ll	1991-2011, 20 years follow-up	88475 women, age 25-42 years: 25246 cases	Validated semiquantitative FFQ	Potatoes (baked, boiled or mashed)	≤1 serv./month 1-3 1-3 serv./week ≥4	1.00 1.08 (0.97-1.21) 1.17 (1.04-1.31) 1.25 (1.11-1.41)	Age, race/ethnicity (white, African-American, Asian, Hispanic, other), BMI, current smoking status, physical activity, weight change per

								FFQ cycle, menopausal status, alcohol intake, current oral contraceptive use, analgesic use (non-steroidal anti-inflammatory drugs, acetaminophen (paracetamol, aspirin), family history of hypertension, total energy intake, animal flesh intake (combination of processed and unprocessed red meat, poultry, and seafood), whole grains, sugar sweetened drink intake, artificially sweetened diet drink intake, total fruit, total vegetables
Borgi L et al, 2016, USA	HPFS	1986-2012, 26 years follow-up	36803 men, age 40-75 years: 16752 cases	Validated semiquantitative FFQ	Potatoes (baked, boiled or mashed)	≤1 serv./month 1-3 1-3 serv./week ≥4	1.00 0.92 (0.82-1.04) 0.95 (0.84-1.07) 0.95 (0.84-1.08)	Age, race/ethnicity (white, African-American, Asian, Hispanic, other), BMI, current smoking status, physical activity, weight change per FFQ cycle, alcohol intake, analgesic use (non-steroidal anti-inflammatory drugs, acetaminophen (paracetamol, aspirin), family history of hypertension, total energy intake, animal flesh intake (combination of processed and unprocessed red meat, poultry, and seafood), whole grains, sugar sweetened drink intake, artificially sweetened diet drink intake, total fruit, total vegetables

Auerbach BJ et al, 2017, USA	Women's Health Initiative (WHI)	1993-2005, 12 years follow-up	80539 women, age 50–79 years: 36314 cases	Semiquantitative food frequency questionnaire (FFQ)	100% Fruit Juice Whole Fruit	≤4 serv./per week 5-6 1 serv./per day 2-3 ≥4 ≤4 serv./per week 5-6 1 serv./per day 2-3 ≥4	1.0 0.99 (0.97-1.01) 1.02 (0.99-1.04) 1.04 (0.99-1.10) 1.29 (1.06-1.56) 1.0 1.02 (1.00-1.04) 1.01 (0.98-1.05) 1.02 (0.98-1.05) 0.94 (0.83-1.05)	Age, education level, race/ethnicity, smoking status, physical activity, body mass index (BMI), hormone replacement therapy status, study arm, and total energy intake
Bahadoran Z et al, 2017, Iran	Tehran Lipid and Glucose Study (TLGS)	2006-2008 and 2012-2014, 6 years follow-up	3042 women and men, age ≥19 years: 291 cases	Validated semiquantitative FFQ, 168 items	Allium vegetables	1.0 g/week 10 39	1.00 0.90 (0.67-1.21) 0.74 (0.54-1.00)	Age, sex, BMI, smoking, type 2 diabetes, TGs to HDL-C ratio, physical activity, dietary pattern scores
Hu AE et al, 2017, Spain	Seguimiento Universidad de Navarra (SUN cohort)	1999-2003, 6.7 years follow-up	13837 participants, mean age 35.1/42.7 years (men/women): 1111 cases	Validated semiquantitative FFQ with 136 items	Potatoes	11.4 g/d 30.1 45.3 68.1 108.7	1.00 0.93 (0.76-1.14) 0.90 (0.73-1.11) 0.95 (0.78-1.16) 0.98 (0.80-1.19)	Age, sex, and recruitment period, BMI; family history of hypertension; physical activity; smoking; education; television watching; total energy intake; sodium intake; and consumption of fast food, low-fat dairy products, fruits, vegetables, tree nuts, fried foods, alcohol, olive oil, and sugar-sweetened beverages, total energy intake

Kim J, 2017, Korea	Korean Genome and Epidemiology Study (KoGES)	2001-2009, and 2002-2010, 8 years follow-up	4257 participants (2172 women, 2085 men), age 40-69 years: 1158 cases (552 women and 606 men)	Validated semiquantitative FFQ, 103 items	Total fruit (women)	Never or rarely	1.00	Age, BMI, residential location, household income, education level, alcohol intake, smoking status, and physical activity, intakes of total energy, sodium, vegetables, meat, grains, and dairy foods
						1-<2 serv./day	0.71 (0.54-0.95)	
						2-<4	0.44 (0.33-0.58)	
						≥4	0.33 (0.24-0.45)	
					Total fruit (men)	Never or rarely	1.00	
						1-<2 serv./day	0.58 (0.45-0.75)	
						2-<4	0.44 (0.34-0.57)	
						≥4	0.44 (0.32-0.60)	
					Total vegetables (women)	Never or rarely	1.00	
						1-<2 serv./day	0.92 (0.61-1.39)	
						2-<4	1.05 (0.71-1.56)	
						≥4	1.22 (0.80-1.85)	
					Total vegetables (men)	Never or rarely	1.00	
						1-<2 serv./day	1.00 (0.66-1.51)	
						2-<4	1.01 (0.67-1.51)	
						≥4	1.19 (0.77-1.85)	
					Citrus fruit (women)	Never or rarely	1.00	
						1-<2 serv./day	1.04 (0.83-1.32)	
						≥2	0.79 (0.48-1.28)	
					Citrus fruit (men)	Never or rarely	1.00	
						1-<2 serv./day	1.06 (0.83-1.35)	
						≥2	1.46 (0.85-2.50)	
					Noncitrus fruit (women)	Never or rarely	1.00	
						1-<2 serv./day	1.06 (0.74-1.51)	
						2-4	1.01 (0.72-1.41)	
						≥4	0.94 (0.67-1.31)	
					Noncitrus fruit (men)	Never or rarely	1.00	
						1-<2 serv./day	1.31 (0.94-1.83)	
						2-4	1.36 (0.99-1.87)	
						≥4	1.23 (0.88-1.72)	
					Carotene-rich fruit (women)	Never or rarely	1.00	
						1-<2 serv./day	1.01 (0.75-1.35)	
						2-4	0.98 (0.75-1.30)	
						≥4	0.93 (0.67-1.29)	
					Carotene-rich fruit (men)	Never or rarely	1.00	
						1-<2 serv./day	1.06 (0.82-1.37)	
						2-4	1.11 (0.85-1.43)	
						≥4	1.12 (0.81-1.56)	
					Cruciferous vegetables (women)	<3-4 serv./week	1.00	
						3-4 serv./week-<1serv./day	1.20 (0.89-1.62)	

					Cruciferous vegetables (men) Carotene-rich vegetables (women) Carotene-rich vegetables (men) Mushrooms (women) Mushrooms (men) Green leafy vegetables (women) Green leafy vegetables (men) Other vegetables (women) Other vegetables (men)	≥1 serv./day <3-4 serv./week 3-4 serv./week-<1serv./day ≥1 serv./day <3-4 serv./week 3-4 serv./week-<1serv./day ≥1 serv./day <3-4 serv./week 3-4 serv./week-<1serv./day ≥1 serv./day <3-4 serv./week 3-4 serv./week-<1serv./day ≥1 serv./day Never or rarely 1-<2 serv./day ≥2 serv./day Never or rarely 1-<2 serv./day ≥2 serv./day Never or rarely 1-<2 serv./day 2-≥4 ≥4 Never or rarely 1-<2 serv./day 2-≥4 ≥4	0.66 (0.37-1.15) 1.00 1.07 (0.83-1.39) 1.13 (0.74-1.74) 1.00 1.07 (0.77-1.48) 0.85 (0.50-1.44) 1.00 1.22 (0.91-1.64) 1.03 (0.57-1.87) 1.00 1.03 (0.74-1.44) 0.73 (0.38-1.39) 1.00 1.33 (1.01-1.75) 0.96 (0.51-1.79) 1.00 0.96 (0.74-1.24) 1.42 (0.95-2.12) 1.00 1.11 (0.89-1.40) 1.14 (0.72-1.81) 1.00 1.08 (0.84-1.41) 1.00 (0.73-1.36) 1.14 (0.65-1.97) 1.00 1.01 (0.80-1.28) 1.13 (0.82-1.55) 1.29 (0.64-2.61)	
Lelong H et al, 2017, France	NutriNet-Santé Cohort	2009-2015, 3.4 years follow-up	80426 women and men, age ≥18 years: 2413 cases	Three 24-hours dietary records, validated against biomarkers	Fruit and vegetables	199 g/d 370 515 786	1.00 1.00 (0.88-1.13) 0.95 (0.84-1.07) 0.85 (0.74-0.97)	Age, sex, smoking status alcohol consumption, BMI, physical activity, educational level, total energy intake, and family history of hypertension

Quinteiros Fidalgo ASQ et al, 2018, Switzerland	The CoLaus study	2009-2017, median 5 years follow-up	2079 participants, age 40-80 years: 370 cases	Self-administered semi quantitative FFQ, 97 items	Fruits Vegetables	1 2 3 4 1 2 3 4	1.00 1.01 (0.73-1.40) 0.85 (0.61-1.20) 1.10 (0.78-1.55) 1.00 0.86 (0.62-1.20) 1.06 (0.77-1.47) 0.95 (0.67-1.33)	Gender, age, BMI, educational level, sedentariness, diabetes, total energy intake
Liu MW et al, 2018, China	China Health and Nutrition Survey (CHNS)	2006-2011, 5 years follow-up	3789 women and men, age 18–64 years: 866 cases	Three consecutive 24-h recalls	Fruit and vegetables	<243.33 g/d 243.33-<326.67 326.67-<405.00 405.00-<520.83 ≥520.83	1.00 0.79 (0.58-1.07) 0.72 (0.53-0.99) 0.71 (0.52-0.97) 0.78 (0.57-1.08)	Age, gender, residence, baseline energy intake, smoking status, alcohol intake, sugar-sweetened beverage intake, leisure physical activity, intake of red meat and whole grains
Lim M, 2019, South Korea	Korean Genome and Epidemiology Study (KoGES)	2001-2009, 2002-2010, 8 years follow-up	4479 participants, age 40-69 years: 1460 cases	Validated semi-quantitative FFQ	Fruit Vegetables	Never or rarely 1-<2 serv/d 2-<4 ≥4 Never or rarely 1-<2 serv/d 2-<4 ≥4	1.00 0.80 (0.66-0.97) 0.67 (0.55-0.81) 0.69 (0.55-0.88) 1.00 1.22 (0.89-1.67) 1.05 (0.77-1.43) 1.25 (0.90-1.73)	Age, residential location, household income, education level, smoking status, alcohol intake, physical activity, BMI, energy intake, vegetable intake, meat intake, refned grain intake, whole grain intake, and dairy intake
Huang M et al, 2019, China	China Health and Nutrition Survey (CHNS)	1989-2011, 11.3 years follow-up	11763 participants, age >20 years: 4033 cases	Three consecutive 24-hour dietary recalls	Total potatoes Sweet potatoes Non stir-fried potatoes	0 g/d 0-25 25.0-66.7 >66.7 0 g/d >0 0 g/d > 0	1.00 1.40 (1.27-1.55) 1.20 (1.01-1.42) 1.12 (0.93-1.35) 1.00 1.06 (0.90-1.23) 1.00 1.15 (1.00-1.32)	Age, sex, marital status, education levels, household income, and residency (urban, rural), BMI, physical activity, medical insurance, smoking status, and alcohol drinking status, total energy intake, total meat intake (red meat, poultry meat, and fish meat), total vegetables intake, total fruit intake, total sodium intake and total potassium intake.

Nguyen B et al, 2019, Australia	45 and Up Study	2006-2010, 4 years follow-up	32393 participants (18779 women, 13617 men), age >45 years: 5539 cases	Validated short questions	Fruit and vegetables (total) Fruit and vegetables (women) Fruit and vegetables (men)	<2/<3 vs. ≥2/≥3 serv./day (fruit/vegetables) <2/<3 vs. ≥2/≥3 serv./day (fruit/vegetables) <2/<3 vs. ≥2/≥3 serv./day (fruit/vegetables)	1.06 (0.99-1.13) 1.05 (0.96-1.15) 1.09 (0.97-1.21)	Age group, sex, follow-up time, country of birth, education, socio-economic status, family history of hypertension, omega 3 or fish oil use, aspirin use, BMI, physical activity level, fruit and vegetable intake, alcohol intake, smoking status, K10 score. In separate analyses conducted in women: current use of hormonal replacement therapy, oral contraceptive use, menopausal status and number of children given birth to (women) Additional covariates in parous women only: mother's age for first child, lifetime breastfeeding duration and high blood pressure during pregnancy
Xu Y et al, 2021, China	Urumqi County, Xinjiang	2008-2018 - NA, 4.5 years follow-up	5327 men and women, age ≥18 years: 1985 cases	Questionnaire	Fruits and vegetables	Yes vs. no	0.81 (0.69-0.95)	Age, sex, smoking, drinking, BMI, DBP, SBP, salt intake, yak-butter, excessive milk in tea, LDL cholesterol, total cholesterol, abdominal circumference, FH - hypertension
Pasdar Y et al, 2022, Iran	The RaNCD cohort study	2014-2021, mean 5.5 years follow-up	1295 participants, age 35-65 years: 294 cases	Validated semi quantitative FFQ, 118 items	Total fruits Whole fruits Total vegetables	≥0.8 vs. 0 cup equivalents/1000 kcal/d ≥0.4 vs. 0 cup equivalents/1000 kcal/d ≥1.1 vs. 0 cup equivalents/1000 kcal/d	0.93 (0.85-0.99) 0.94 (0.85-1.03) 1.02 (0.93-1.12)	Gender, age, socioeconomic status, educational level, physical activity, diabetes, BMI, energy intake

Supplementary table 3: Quality Assessment with Newcastle-Ottawa scale

Author (study), year	Selection			Comparability	Outcome			Total score out of 8 possible
	Selection of non-exposed cohort	Exposure ascertainment	Demonstration of utcome not present at start	0.25 points for each confounder adjusted for	Outcome assessment	Long enough follow-up (≥3 years)	Adequacy of follow-up (<10% lost)	
Steffen et al, 2005	1	1	1	2	1	1	0	7
Nuñez-Cordoba et al, 2008	1	1	1	2	0	1	1	7
Camoes et al, 2010	1	1	1	1.5	1	1	0	6.5
Tsubota-Utsugi et al, 2011	1	1	1	2	1	1	0	7
Wang et al, 2011	1	1	1	2	1	1	0	7
Weng et al, 2013	1	1	1	2	1	1	0	7
Golzarand et al, 2015	1	1	1	2	1	0	1	7
Borgi et al (NHS, F&V), 2016	1	1	1	2	1	1	0	7
Borgi et al (NHS2, F&V), 2016	1	1	1	2	1	1	0	7
Borgi et al (HPFS, F&V), 2016	1	1	1	2	1	1	0	7
Borgi et al (NHS, potatoes), 2016	1	1	1	2	1	1	0	7
Borgi et al (NHS2, potatoes), 2016	1	1	1	2	1	1	0	7
Borgi et al (HPFS, potatoes), 2016	1	1	1	2	1	1	0	7
Auerback et al, 2017	1	1	1	2	0.5	1	0	6.5
Bahadoran et al, 2017	1	1	1	2	1	1	0	7
Hu et al, 2017	1	1	1	2	0.5	1	1	7.5
Kim et al, 2017	1	1	1	2	1	1	1	8
Lelong et al, 2017	1	1	1	2	0.5	1	1	7.5

Liu et al, 2018	1	1	1	2	1	1	0	7
Quinteiros Fidalgo et al	1	1	1	1.75	1	1	0	6.75
Lim et al, 2019	1	1	1	2	1	1	0	7
Huang et al, 2019	1	1	1	2	1	1	0	7
Ngyuen et al, 2019	1	1	1	2	0.5	1	0	6.5
Pasdar et al, 2022	1	1	1	2	1	1	0	7
Xu et al, 2021	1	1	1	2	1	1	1	8

Supplemental Table 4. World Cancer Research Fund grading criteria

Grading	Criteria
Convincing	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: - 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	All of the following are generally required: - 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	All of the following are generally required: - 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: - 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: - 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.

Supplementary Table 5. Fruit and vegetables and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Fruits and vegetables (n=8)		Fruits (n=10)		Vegetables (n=9)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
40	1.00	8	1.00	40	1.00
100	0.99 (0.98-1.00)	100	0.94 (0.88-0.99)	100	0.99 (0.98-1.00)
200	0.97 (0.95-0.99)	200	0.89 (0.80-0.98)	200	0.97 (0.94-1.00)
300	0.95 (0.92-0.99)	300	0.86 (0.77-0.95)	300	0.97 (0.94-1.01)
400	0.93 (0.89-0.98)	400	0.84 (0.75-0.94)	400	0.98 (0.94-1.02)
500	0.92 (0.88-0.97)	500	0.82 (0.72-0.93)	500	0.98 (0.94-1.03)
600	0.91 (0.86-0.96)	550	0.81 (0.71-0.92)		
700	0.90 (0.85-0.96)				
800	0.89 (0.83-0.96)				
$p_{nonlinearity}$	0.23	$p_{nonlinearity}$	0.23	$p_{nonlinearity}$	0.09

Supplementary Table 6. Fruit subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Apples or pears (n=4)		Avocado (n=3)		Bananas (n=4)		Blueberries (n=4)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
2.1	1.00	2.25	1.00	1.71	1.00	1.1	1.00
20	0.98 (0.96-1.00)	20	0.95 (0.92-0.98)	20	1.01 (0.99-1.03)	10	0.97 (0.95-0.99)
40	0.96 (0.94-0.99)	40	0.92 (0.87-0.96)	40	1.02 (0.99-1.04)	20	0.96 (0.93-0.99)
60	0.95 (0.93-0.98)	60	0.90 (0.85-0.97)	60	1.01 (0.99-1.04)	30	0.97 (0.91-1.03)
80	0.95 (0.92-0.97)	80	0.91 (0.82-1.01)	80	1.01 (0.98-1.03)	40	0.99 (0.88-1.12)
100	0.94 (0.92-0.97)	100	0.92 (0.78-1.08)	97.6	1.00 (0.98-1.03)	50	1.03 (0.85-1.24)
$p_{nonlinearity}$	0.14	$p_{nonlinearity}$	0.11	$p_{nonlinearity}$	0.16	$p_{nonlinearity}$	0.09

Supplementary Table 7. Fruit subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Cantaloupe (n=3)		Oranges (n=4)		Peaches, apricots, plums (n=3)		Prunes (n=3)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
2.0	1.00	2.0	1.00	1.3	1.00	1.2	1.00
20	1.03 (1.02-1.05)	20	0.99 (0.97-1.01)	20	1.02 (0.99-1.04)	20	0.97 (0.93-1.02)
40	1.05 (1.03-1.08)	40	0.98 (0.96-1.01)	40	1.02 (0.99-1.05)	40	0.97 (0.91-1.03)
60	1.05 (1.01-1.10)	60	0.97 (0.94-1.00)	60	1.01 (0.96-1.06)	60	0.96 (0.88-1.06)
80	1.04 (0.97-1.12)	80	0.97 (0.94-1.00)				
96	1.03 (0.94-1.14)	93.5	0.96 (0.92-0.99)				
$p_{nonlinearity}$	0.05	$p_{nonlinearity}$	0.92	$p_{nonlinearity}$	0.20	$p_{nonlinearity}$	0.53

Supplementary Table 8. Fruit subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Raisins or grapes (n=4)		Strawberries (n=4)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
1.1	1.00	1.1	1.00
10	0.97 (0.96-0.99)	10	1.00 (0.98-1.02)
20	0.95 (0.92-0.97)	20	1.01 (0.98-1.04)
30	0.93 (0.90-0.96)	30	1.02 (0.98-1.05)
40	0.92 (0.87-0.97)	40	1.02 (0.99-1.06)
50	0.91 (0.84-0.98)	50	1.03 (0.99-1.07)
57	0.90 (0.82-0.99)	54	1.03 (0.98-1.08)
$p_{nonlinearity}$	0.20	$p_{nonlinearity}$	0.95

Supplementary Table 9. Vegetable subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Avocado (n=3)		Broccoli (n=3)		Brussel sprouts (n=3)		Cabbage (n=3)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
2.25	1.00	1.1	1.00	1.17	1.00	1.0	1.00
20	0.95 (0.92-0.98)	10	0.98 (0.97-1.00)	10	1.02 (1.00-1.04)	10	1.01 (0.99-1.03)
40	0.92 (0.87-0.96)	20	0.97 (0.95-0.99)	20	1.04 (1.01-1.07)	20	1.02 (0.99-1.05)
60	0.90 (0.85-0.97)	30	0.96 (0.93-0.98)	30	1.07 (1.02-1.12)	30	1.03 (1.00-1.06)
80	0.91 (0.82-1.01)	40	0.95 (0.92-0.97)	40	1.10 (1.02-1.19)	40	1.04 (0.99-1.09)
100	0.92 (0.78-1.08)	50	0.94 (0.91-0.97)	50	1.14 (1.00-1.29)	50	1.05 (0.97-1.14)
				56	1.16 (0.99-1.36)		
$p_{nonlinearity}$	0.11	$p_{nonlinearity}$	0.42	$p_{nonlinearity}$	0.64	$p_{nonlinearity}$	0.89

Supplementary Table 10. Vegetable subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Carrot (n=3)		Cauliflower (n=3)		Corn (n=3)		Cruciferous vegetables (n=2)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
0.86	1.00	0.83	1.00	1.2	1.00	3.6	1.00
10	0.98 (0.96-1.00)	10	1.02 (0.98-1.07)	10	1.01 (1.00-1.03)	20	1.05 (0.94-1.16)
20	0.96 (0.93-0.99)	20	1.04 (0.97-1.11)	20	1.03 (1.00-1.05)	40	1.09 (0.91-1.31)
30	0.96 (0.93-0.99)	30	1.05 (0.98-1.13)	30	1.03 (1.01-1.06)	60	1.10 (0.96-1.26)
40	0.95 (0.93-0.98)	40	1.07 (0.99-1.15)	40	1.03 (0.99-1.08)	80	1.07 (0.97-1.18)
				50	1.03 (0.96-1.12)	100	1.04 (0.79-1.36)
				57	1.03 (0.93-1.15)		
$p_{nonlinearity}$	0.24	$p_{nonlinearity}$	0.83	$p_{nonlinearity}$	0.54	$p_{nonlinearity}$	0.60

Supplementary Table 11. Vegetable subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Green pepper (n=3)		Lettuce (n=3)		Onions (n=4)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
1.2	1.00	0.8	1.00	1.2	1.00
10	1.01 (0.99-1.02)	10	0.97 (0.94-1.00)	10	1.00 (0.98-1.02)
20	1.01 (0.99-1.04)	20	0.95 (0.91-1.00)	20	1.00 (0.97-1.04)
30	1.01 (0.99-1.04)	30	0.95 (0.90-0.99)	30	1.00 (0.96-1.05)
40	1.01 (0.98-1.04)	40	0.95 (0.91-0.99)	40	1.00 (0.95-1.05)
50	1.00 (0.97-1.04)			50	1.00 (0.94-1.06)
57	1.00 (0.96-1.04)			57	0.99 (0.93-1.06)
$p_{nonlinearity}$	0.18	$p_{nonlinearity}$	0.20	$p_{nonlinearity}$	0.79

Supplementary Table 12. Vegetable subtypes and hypertension, relative risks and 95% confidence intervals from nonlinear dose-response analysis

	Potatoes (total) (n=5)		Potatoes (fried) (n=5)		Potatoes (non-fried) (n=5)		Tomatoes (n=4)		Yams or sweet potatoes (n=4)
g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)	g/d	RRs (95% CIs)
0	1.00	1.2	1.00	6.1	1.00	1.8	1.00	3.0	1.00
50	1.05 (1.02-1.08)	20	1.05 (1.03-1.07)	20	1.01 (1.00-1.03)	20	1.01 (0.98-1.03)	20	1.01 (1.00-1.02)
100	1.09 (1.04-1.14)	40	1.09 (1.06-1.13)	40	1.03 (0.99-1.06)	40	1.01 (0.97-1.05)	40	1.02 (1.00-1.04)
150	1.11 (1.03-1.19)	60	1.12 (1.08-1.16)	60	1.04 (0.99-1.10)	60	1.01 (0.97-1.06)	60	1.03 (1.01-1.05)
200	1.12 (1.01-1.24)	80	1.13 (1.09-1.17)	80	1.05 (0.99-1.12)	80	1.02 (0.98-1.05)	80	1.03 (1.00-1.06)
231	1.12 (0.98-1.27)	100	1.13 (1.08-1.18)	100	1.06 (0.98-1.14)	100	1.02 (0.99-1.05)	100	1.03 (0.99-1.08)
		120	1.11 (1.04-1.20)	120	1.06 (0.98-1.16)	120	1.02 (0.99-1.05)	120	1.03 (0.97-1.11)
		140	1.10 (0.99-1.22)	140	1.07 (0.97-1.17)	140	1.02 (0.98-1.06)	140	1.03 (0.94-1.14)
$p_{nonlinearity}$	0.07	$p_{nonlinearity}$	0.02	$p_{nonlinearity}$	0.10	$p_{nonlinearity}$	0.80	$p_{nonlinearity}$	0.54

Supplementary Table 13. Subgroup analyses of fruits and vegetables and risk of hypertension (per 200 g/d)

	Fruits and vegetables					**Fruits**					**Vegetables**				
	n	RR (95% CI)	I^2	P_h^1	P_h^2	n	RR (95% CI)	I^2	P_h^1	P_h^2	n	RR (95% CI)	I^2	P_h^1	P_h^2
All studies	8	0.97 (0.95-0.99)	68.1	0.003		10	0.93 (0.89-0.98)	77.3	<0.0001		9	1.00 (0.98-1.03)	45.0	0.07	
Duration of follow-up															
<10 years follow-up	3	0.90 (0.82-1.00)	39.7	0.19	0.19	5	0.91 (0.76-1.09)	85.5	<0.0001	0.96	4	1.00 (0.90-1.10)	6.1	0.36	0.94
≥10 years follow-up	5	0.98 (0.95-1.00)	73.0	0.005		5	0.94 (0.90-0.98)	66.7	0.02		5	1.00 (0.97-1.03)	64.7	0.02	
Gender															
Men	1	0.97 (0.94-0.99)			0.30/ 0.66[3]	2	0.88 (0.74-1.04)	85.8	0.008	0.99/ 0.43[3]	1	1.00 (0.96-1.03)			0.47/ 0.92[3]
Women	3	0.98 (0.95-1.01)	83.4	0.002		5	0.95 (0.91-1.00)	81.1	<0.0001		4	1.00 (0.97-1.04)	71.7	0.01	
Men and women	4	0.91 (0.85-0.97)	24.8	0.26		4	0.80 (0.60-1.08)	67.6	0.03		4	0.91 (0.79-1.05)	0	0.66	
Geographic location															
Europe	3	0.90 (0.82-1.00)	39.7	0.19	0.41	1	0.97 (0.79-1.18)			0.15	1	0.94 (0.75-1.19)			0.67
America	4	0.98 (0.96-1.00)	76.6	0.005		6	0.95 (0.91-1.00)	74.9	0.001		5	1.00 (0.97-1.03)	64.7	0.02	
Asia	1	0.87 (0.75-1.02)				3	0.78 (0.56-1.09)	68.8	0.04		3	0.93 (0.72-1.21)	29.8	0.24	
Number of cases															
Cases <500	2	0.84 (0.73-0.96)	0	0.38	0.05	3	0.83 (0.56-1.23)	70.2	0.04	0.94	3	0.89 (0.72-1.09)	0	0.47	0.38
Cases 500-<1000	1	0.87 (0.75-1.02)				0					0				
Cases ≥1000	5	0.97 (0.95-0.99)	73.1	0.005		7	0.93 (0.89-0.98)	81.8	<0.0001		6	1.00 (0.98-1.03)	57.6	0.04	
Definition of hypertension															
≥140/≥90 mmHg	7	0.97 (0.95-0.99)	70.1	0.003	0.50	7	0.96 (0.92-0.99)	62.5	0.01	0.02	3	1.01 (0.93-1.09)	0	0.46	0.95
≥130 or ≥135/≥85 mmHg	0					3	0.70 (0.51-0.98)	67.8	0.05		6	1.00 (0.97-1.03)	61.4	0.02	

Only self-report (no cut-off)		1	0.94 (0.90-0.99)				0					0				
Study quality																
0-3 stars		0				NC	0				NC	0				0.20
>3-6		0					0					1	0.61 (0.30-1.21)			
>6-8		8	0.97 (0.95-0.99)	68.1	0.003		10	0.93 (0.89-0.98)	77.3	<0.0001		8	1.00 (0.98-1.03)	44.0	0.09	
Adjustment for confounding factors																
Age	Yes	8	0.97 (0.95-0.99)	68.1	0.003	NC	10	0.93 (0.89-0.98)	77.3	<0.0001	NC	9	1.00 (0.98-1.03)	45.0	0.07	NC
	No	0					0					0				
Education	Yes	2	0.88 (0.74-1.06)	66.1	0.09	0.28	3	0.87 (0.70-1.08)	91.9	<0.0001	0.62	2	1.01 (0.93-1.10)	5.3	0.30	0.86
	No	6	0.97 (0.95-0.99)	68.6	0.007		7	0.94 (0.91-0.98)	59.9	0.02		7	1.00 (0.97-1.03)	55.3	0.04	
Family history of hypertension	Yes	5	0.97 (0.95-0.99)	31.2	0.21	0.27	4	0.94 (0.90-0.98)	59.8	0.06	0.73	4	1.00 (0.96-1.04)	71.7	0.01	0.87
	No	3	0.91 (0.78-1.05)	75.4	0.02		6	0.90 (0.79-1.01)	84.3	<0.0001		5	1.01 (0.98-1.04)	0	0.45	
Smoking	Yes	7	0.97 (0.95-0.99)	64.5	0.01	0.11	10	0.93 (0.89-0.98)	77.3	<0.0001	NC	9	1.00 (0.98-1.03)	45.0	0.07	NC
	No	1	0.78 (0.62-0.97)				0					0				
Alcohol	Yes	7	0.97 (0.95-0.99)	64.5	0.01	0.11	8	0.92 (0.87-0.96)	76.9	<0.0001	0.23	8	1.00 (0.98-1.03)	44.0	0.09	0.58
	No	1	0.78 (0.62-0.97)				2	1.04 (0.97-1.11)	0	0.48		1	0.61 (0.30-1.21)			
Body mass index	Yes	7	0.97 (0.95-0.99)	70.1	0.003	0.33	9	0.94 (0.89-0.99)	77.7	<0.0001	0.22	8	1.00 (0.98-1.03)	49.7	0.05	0.45
	No	1	0.87 (0.75-1.02)				1	0.71 (0.53-0.95)				1	0.93 (0.77-1.12)			
Physical activity	Yes	8	0.97 (0.95-0.99)	68.1	0.003	NC	10	0.93 (0.89-0.98)	77.3	<0.0001	NC	9	1.00 (0.98-1.03)	45.0	0.07	NC
	No	0					0					0				
Sodium	Yes	1	0.88 (0.73-1.06)			0.47	3	0.83 (0.56-1.23)	70.2	0.04	0.94	3	0.89 (0.72-1.09)	0	0.47	0.30
	No	7	0.97 (0.95-0.99)	71.3	0.002		7	0.93 (0.89-0.98)	81.8	<0.0001		6	1.00 (0.98-1.03)	57.6	0.04	

Sugar-sweetened beverages	Yes	4	0.97 (0.95-0.99)	45.2	0.14	0.90	3	0.94 (0.90-0.98)	73.0	0.03	0.82	3	1.00 (0.96-1.04)	80.7	0.006	0.96
	No	4	0.95 (0.89-1.01)	75.3	0.007		7	0.91 (0.82-1.01)	81.2	<0.0001		6	1.01 (0.98-1.03)	0	0.56	
Meat	Yes	5	0.98 (0.95-1.00)	73.0	0.005	0.19	5	0.92 (0.88-0.97)	80.0	<0.0001	0.70	5	1.00 (0.98-1.03)	64.1	0.03	0.25
	No	3	0.90 (0.82-1.00)	39.7	0.19		5	0.89 (0.73-1.09)	72.0	0.006		4	0.91 (0.79-1.05)	0	0.66	
Fish	Yes	4	0.97 (0.95-0.98)	36.4	0.19	0.99	4	0.94 (0.90-0.98)	59.8	0.06	0.73	4	1.00 (0.96-1.04)	71.7	0.01	0.87
	No	4	0.94 (0.88-1.01)	77.3	0.004		6	0.90 (0.79-1.01)	84.3	<0.0001		5	1.01 (0.98-1.04)	0	0.45	
Whole grains	Yes	6	0.97 (0.95-0.99)	68.6	0.007	0.28	6	0.93 (0.89-0.97)	75.1	0.001	0.80	6	1.00 (0.98-1.03)	56.0	0.04	0.29
	No	2	0.88 (0.74-1.06)	66.1	0.09		4	0.83 (0.61-1.13)	78.7	0.003		3	0.89 (0.75-1.06)	0	0.48	
Dairy products	Yes	2	0.98 (0.88-1.08)	43.7	0.18	0.13	3	0.91 (0.79-1.04)	83.8	0.002	0.68	3	1.01 (0.98-1.04)	0	0.75	0.65
	No	6	0.96 (0.94-0.98)	51.8	0.07		7	0.94 (0.89-1.00)	77.2	<0.0001		6	1.00 (0.96-1.03)	62.9	0.02	
Energy intake	Yes	8	0.97 (0.95-0.99)	68.1	0.003	NC	10	0.93 (0.89-0.98)	77.3	<0.0001	NC	9	1.00 (0.98-1.03)	45.0	0.07	NC
	No	0					0					0				

N denotes the number of studies.

[1] P for heterogeneity within each subgroup,

[2] P for heterogeneity between subgroups with meta-regression analysis,

[3] P for heterogeneity between men and women (studies with men and women combined were excluded),

NC = not calculable

Supplemental Table 14. Justification for evidence grading for fruit and vegetables and hypertension

Requirements for grading of convincing	Fruit and vegetables	Fruits	Vegetables
Statistically significant and robust association	A statistically significant 11% reduction in risk was observed for high vs. low intake and at the highest level of intake in the nonlinear dose-response analysis, and this was robust in influence analyses. Two studies only reported dichotomous results and could not be included in the dose-response analyses.	A statistically significant 9% reduction in risk was observed for high vs. low intake and a 19% reduction in risk was observed at the highest level of intake in the nonlinear dose-response analysis. Results were robust in influence analyses. Two studies could not be included in the dose-response analysis.	No significant association was observed in high vs. low, linear and nonlinear dose-response analyses, and there is no evidence of nonlinearity. The lack of association is not driven by any single studies.
Evidence from at least two independent cohort studies	10 studies (high vs. low) 8 studies (dose-response)	13 studies (high vs. low) 10 studies (dose-response)	12 studies (high vs. low) 9 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 was moderate heterogeneity in the high vs. low analysis and moderate to high heterogeneity in the dose-response analysis, however, this was largely due to differences in the strength of the association (all except one study reported associations in the direction of reduced risk). The inverse associations persisted across most subgroup analyses.	Heterogeneity in high vs. low analysis was moderate and in in the linear dose-response analysis was high. All studies except one show risk estimates in the direction of reduced risk in the dose-response analysis, although not all are statistically significant. No studies show a significant increase in risk.	No to low heterogeneity in the high vs. low and dose-response analyses. All studies reported no statistically significant association in the high vs. low analysis. Out of twelve studies in the high vs. low analysis, ten reported estimates in the direction of reduced risk, and two in the direction of increased risk. Results were similar and close to null for most studies in the dose-response analysis.
Good quality studies to	No indication of publication bias in	No indication of publication bias.	No indication of publication bias.

exclude with confidence the possibility that the observed association results from random or systematic error, including confounding, measurement error, and selection bias	the dose-response analysis Results persisted in several, although not all subgroup analyses. However, there was no indication of between subgroup heterogeneity with meta-regression analyses. No studies corrected for measurement error. All studies excluded prevalent hypertension cases at baseline. Exposed and non-exposed participants were selected from the same populations.	Results are in general consistent in subgroup analyses, although for some subgroups there is low power due to few studies. There is no indication of significant between subgroup heterogeneity. No studies corrected for measurement error. All studies excluded prevalent hypertension cases at baseline. Exposed and non-exposed participants were selected from the same populations.	Subgroup analyses based on high vs. low and dose-response analyses show consistently no significant association. No studies corrected for measurement error. All studies excluded prevalent hypertension cases at baseline. Exposed and non-exposed participants were selected from the same populations.
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	Evidence of a clear dose-response relationship up to an intake of 800 g/d and the test for nonlinearity was not significant (p=0.21).	There is strong evidence of an inverse dose-response relationship up to an intake of 550 g/d, and there is no indication of nonlinearity (p=0.31). Several subtypes of fruit are inversely associated with hypertension, while a few fruit subtypes (cantaloupe, watermelon) are slightly positively associated	There is no evidence of nonlinearity (p=0.10). Different types of vegetables show associations in opposite directions, which potentially could explain the null association for vegetables overall.

plausibly		with hypertension.	
Strong and plausible experimental evidence, either from human studies or relevant animal models, that typical human exposures can lead to relevant outcomes	There is evidence from a meta-analysis of two randomized trials that increased fruit and vegetable consumption can reduce blood pressure. There is 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. 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 hypertension. There is also some evidence that high fiber intake may reduce blood pressure directly independently of adiposity, e.g. by affecting vascular endothelial function, mineral absorption, serum cholesterol, glycemic control/insulin resistance, and gastrointestinal	There is evidence from a meta-analysis of two randomized trials that increased fruit and vegetable consumption can reduce blood pressure, however, these trials did not specifically look only at fruit intake. There is 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. Fruits 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 hypertension. There is also some evidence that high fiber intake may reduce blood pressure directly independently of adiposity, e.g. by affecting vascular endothelial function, mineral absorption, serum cholesterol, glycemic control/insulin resistance, and gastrointestinal	There is evidence from a meta-analysis of two randomized trials that increased fruit and vegetable consumption can reduce blood pressure, however, these trials did not specifically look only at vegetable intake. There is 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. 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 hypertension. There is also some evidence that high fiber intake may reduce blood pressure directly independently of adiposity, e.g. by affecting vascular endothelial function, mineral absorption, serum cholesterol, glycemic control/insulin resistance, and

	function. Fruits and vegetables have a high content of various antioxidants and nutrients including potassium, vitamin C, vitamin E and folate, which may contribute towards reduced hypertension risk. There is evidence from randomized trials that potassium supplementation has a U-shaped relation with systolic and diastolic blood pressure. There is also evidence from meta-analyses of randomized controlled trials that vitamin C supplementation can reduce systolic and diastolic blood pressure and vitamin E supplementation can reduce systolic blood pressure. Another meta-analysis found folic acid supplementation combined with blood pressure lowering medication reduces systolic and diastolic blood pressure significantly compared to using only blood pressure lowering medication.	function. Fruits and vegetables have a high content of various antioxidants and nutrients including potassium, vitamin C, vitamin E and folate, which may contribute towards reduced hypertension risk. There is evidence from randomized trials that potassium supplementation has a U-shaped relation with systolic and diastolic blood pressure. There is also evidence from meta-analyses of randomized controlled trials that vitamin C supplementation can reduce systolic and diastolic blood pressure and vitamin E supplementation can reduce systolic blood pressure. Another meta-analysis found folic acid supplementation combined with blood pressure lowering medication reduces systolic and diastolic blood pressure significantly compared to using only blood pressure lowering medication.	gastrointestinal function. Vegetables have a high content of various antioxidants and nutrients including potassium, vitamin C, vitamin E and folate, which may contribute towards reduced hypertension risk. There is evidence from randomized trials that potassium supplementation has a U-shaped relation with systolic and diastolic blood pressure. There is also evidence from meta-analyses of randomized controlled trials that vitamin C supplementation can reduce systolic and diastolic blood pressure and vitamin E supplementation can reduce systolic blood pressure. Another meta-analysis found folic acid supplementation combined with blood pressure lowering medication reduces systolic and diastolic blood pressure significantly compared to using only blood pressure lowering medication.
Final grading and justification for overall assessment.	Probable evidence for reduced risk with higher fruit and vegetable intake. Justification: Clear and significant inverse associations in high vs. low,	Probable evidence for reduced hypertension risk with higher fruit intake. Justification: Significant high vs. low, linear and nonlinear dose-	Limited-no conclusion evidence for the association between vegetables and hypertension. Justification: This is largely based on the lack of association in both

	linear and nonlinear dose-response analyses and with evidence of a dose-response relationship. Results are in general consistent across most subgroup analyses, although not always statistically significant in every subgroup, but this is likely due to few studies. Moderate to high heterogeneity (but largely due to different strength of association in various studies), no publication bias, no indication of selection bias. Biologically plausible mechanisms exist and there is data from randomized controlled trials that fruits and vegetables and certain nutrients that can be found in fruits and vegetables can reduce blood pressure, and that dietary patterns (DASH-diet) high in fruits and vegetables can reduce blood pressure.	response analyses with a clear dose-response relationship. Moderate to high heterogeneity (which is driven by differences in the size of the effect estimates). Inverse associations are observed in many subgroup analyses as well as in influence analyses. No publication bias and 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 and there is data from randomized controlled trials that fruits and certain nutrients that can be found in fruits can reduce blood pressure, and that dietary patterns (DASH-diet) high in fruit (and vegetables) can reduce blood pressure.	high vs. low, linear dose-response and nonlinear dose-response analyses. The null results are robust in subgroup and influence analyses. There is little heterogeneity and no indication of publication bias. Sensitivity analyses excluding one study at a time shows no single study account for the null association. No indication of selection bias. Different vegetable subtypes shows different direction of associations, which potentially could explain the overall null association. Biologically plausible mechanisms by which vegetables could reduced hypertension risk exist.

Supplemental Table 15. Evidence grading for fruit and vegetables and subtypes and hypertension

	Reduced risk	Increased risk
Convincing	-	-
Probable	Fruits and vegetables combined, total fruits	-
Limited-suggestive	Apples/pears, blueberries, grapes and raisins, avocado, broccoli, carrots, lettuce	Cantaloupe, brussel sprouts, total potatoes, fried potatoes, non-fried potatoes
Limited - no conclusion	Vegetables, bananas, oranges, peaches/plums/apricots, prunes, strawberries, cabbage, cauliflower, corn, onions, tomatoes, yams or sweet potatoes	

For fruit and vegetable subtypes these judgments were largely based on the limited number of studies published.