

Supplementary Figure 1. Participant inclusion and exclusion flowchart

MLVS, Men's Lifestyle Validation Study; SFFQ, semiquantitative food frequency questionnaire; SFFQ2, second semiquantitative food frequency questionnaire; WLVS, Women's Lifestyle Validation Study; 7DDR, weighed 7-day diet records

Supplementary Table 1. Spearman rank correlation coefficients comparing semiquantitative food frequency questionnaire-derived flavonoid intake estimates using the Harvard and Phenol-Explorer databases in MLVS and WLVS

	Unadjusted r_s	Energy-adjusted r_s^*
Men		
Total flavonoids	0.85	0.82
Flavonols	0.84	0.80
Flavan-3-ol monomers	0.77	0.73
Proanthocyanidins [†]	0.84	0.84
Flavanones	0.73	0.70
Flavones	0.22	0.08
Anthocyanins	0.93	0.93
Isoflavones	0.51	0.47
Women		
Total flavonoids	0.85	0.82
Flavonols	0.85	0.81
Flavan-3-ol monomers	0.81	0.79
Proanthocyanidins ²	0.82	0.80
Flavanones	0.71	0.67
Flavones	0.29	0.12
Anthocyanins	0.96	0.93
Isoflavones	0.48	0.43

MLVS, Men's Lifestyle Validation Study; r_s , Spearman rank correlation coefficient; WLVS, Women's Lifestyle Validation Study

*Adjusted for total energy intake using the residual method.

[†]Includes proanthocyanidin dimers and trimers.

Supplementary Table 2. Rank Intraclass Correlation Coefficients (ICC) comparing flavonoid intake from the first and second week of the 7-Day Dietary Records in MLVS and WLVS

	Unadjusted	Energy-adjusted*
Men		
Total flavonoids	0.68	0.66
Flavonols	0.65	0.64
Flavan-3-ol monomers	0.60	0.60
Proanthocyanidins [†]	0.51	0.51
Flavanones	0.67	0.67
Flavones	0.51	0.48
Anthocyanins	0.52	0.51
Isoflavones	0.42	0.39
Women		
Total flavonoids	0.69	0.68
Flavonols	0.63	0.62
Flavan-3-ol monomers	0.59	0.58
Proanthocyanidins [†]	0.50	0.49
Flavanones	0.58	0.57
Flavones	0.42	0.39
Anthocyanins	0.45	0.43
Isoflavones	0.42	0.39

MLVS, Men's Lifestyle Validation Study; r_s , Spearman rank correlation coefficient; WLVS, Women's Lifestyle Validation Study

* Adjusted for total energy intake using the residual method.

[†]Includes proanthocyanidin dimers and trimers.

Supplementary Table 3. Mean 7-day diet record intakes from foods assessed and not assessed on the semiquantitative food frequency questionnaire* in MLVS and WLVS

	7DDR intake captured by SFFQ foods (mg/d)	7DDR intake captured by foods not in the SFFQ (mg/d)	% of 7DDR intake captured by SFFQ foods	Major 7DDR food contributors not assessed on SFFQ (percent relative contribution to mean intake) [†]
Men				
Total flavonoids	332.6	19.5	94	Cherry (2%), blackberry (1%)
Flavonols	134.4	2.7	98	--
Flavan-3-ol monomers	58.6	1	98	--
Proanthocyanidins [‡]	43.8	0.4	99	--
Flavanones	41.6	0.4	99	--
Flavones	10.6	0.7	94	Artichoke (4%), oregano (2%)
Anthocyanins	43.7	14.2	75	Cherry (13%), blackberry (5%), raspberry (3%), cranberry (2%)
Women				
Total flavonoids	310.6	13.4	96	Cherry (2%)
Flavonols	143.6	2.1	99	--
Flavan-3-ol monomers	75.1	0.8	99	--
Proanthocyanidins [‡]	34.2	0.4	99	--
Flavanones	20.6	0.2	99	--
Flavones	7.6	0.6	93	Artichoke (5%), oregano (1%)
Anthocyanins	29.6	9.2	76	Cherry (13%), blackberry (6%), raspberry (3%), cranberry (3%)

7DDR, weighed 7-day diet records; MLVS, Men's Lifestyle Validation Study; SFFQ, semiquantitative food frequency questionnaire; WLVS, Women's Lifestyle Validation Study

*Both 7DDR and FFQ flavonoid estimates were derived from Phenol-Explorer; isoflavones were not included because 7DDR intake captured by foods not in the SFFQ was negligible.

[†]Foods are listed if their mean intake is greater than 1% of the 7DDR mean intake

[‡]Includes proanthocyanidin dimers and trimers.

Supplementary Table 4. Variance in 7-day diet record intakes from foods assessed and not assessed on the semiquantitative food frequency questionnaire* in MLVS and WLVS

	Variance in 7DDR intake captured by SFFQ foods (mg/d) ²	Variance in 7DDR intake captured by foods not in the SFFQ (mg/d) ²	% of 7DDR variance captured by SFFQ foods	Major 7DDR food contributors not assessed on SFFQ (variance contributed by the food, (mg/d) ²) [†]
Men				
Total flavonoids	56231.7	1004.8	98	--
Flavonols	26594.6	11.7	99	--
Flavan-3-ol monomers	7175.0	3.2	99	--
Proanthocyanidins [‡]	1615.3	0.9	99	--
Flavanones	3083.1	3.1	99	--
Flavones	61.2	4.0	94	Artichoke (2.7), oregano (1.2)
Anthocyanins	1756.6	752.5	70	Cherry (411.2), blackberry (166.9), raspberry (29.1)
Women				
[‡] Total flavonoids	60739.3	388.3	99	--
Flavonols	29501.6	7.6	99	--
Flavan-3-ol monomers	12780.4	1.6	99	--
Proanthocyanidins [‡]	1422.5	0.8	99	--
Flavanones	1244.7	0.5	99	--
Flavones	23.0	3.1	88	Artichoke (2.7)
Anthocyanins	1089.4	284.7	79	Cherry (183.3), blackberry (67.5), raspberry (11.5)

7DDR, weighed 7-day diet records; MLVS, Men's Lifestyle Validation Study; SFFQ, semiquantitative food frequency questionnaire; WLVS, Women's Lifestyle Validation Study

*Both 7DDR and FFQ flavonoid estimates were derived from Phenol-Explorer; isoflavones were not included because 7DDR intake captured by foods not in the SFFQ was negligible.

[†]Foods are listed if their variance in intake is greater than 1% of the 7DDR variance

[‡]Includes proanthocyanidin dimers and trimers.

Supplementary Table 5. Intake estimates for major food contributors to flavonoid intake in MLVS and WLVS

	Percent of cohort who consumed the food	Final SFFQ				Percent of cohort who consumed the food	7DDR*			
		Mean (SD) intake (g/day)					Mean (SD) intake (g/day)			
		Consumers only		Entire population			Consumers only		Entire population	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Men										
Apple	86	66	70	57	69	84	52	50	44	50
Blueberry	79	25	33	20	31	64	21	25	13	22
Grapefruit	36	30	47	11	31	36	33	50	12	34
Onion	90	30	41	27	40	100	18	13	18	13
Orange	73	36	47	26	43	60	27	34	16	30
Orange juice	61	110	99	67	94	60	99	97	60	90
Soy milk	10	174	150	16	68	8	113	111	9	44
Red wine	69	85	98	59	91	62	92	95	58	88
Strawberry	80	17	20	13	19	84	15	25	13	23
Tea	49	183	262	91	206	59	241	283	141	247
Tofu	24	23	36	5	20	14	10	16	1	7
Women										
Apple	92	60	57	55	57	85	39	35	33	35
Blueberry	77	19	22	15	21	52	16	20	8	17
Grapefruit	32	20	31	6	20	40	20	25	8	19
Onion	91	33	34	30	34	100	13	8	13	8
Orange	69	25	26	17	24	64	22	24	14	22
Orange juice	49	80	99	39	80	55	57	69	31	59
Soy milk	13	121	110	15	56	10	93	74	10	37
Red wine	53	58	83	30	67	48	58	75	28	59
Strawberry	90	16	17	14	17	88	14	18	12	18
Tea	67	207	288	139	255	77	269	299	208	286
Tofu	20	17	25	3	13	7	10	17	1	5

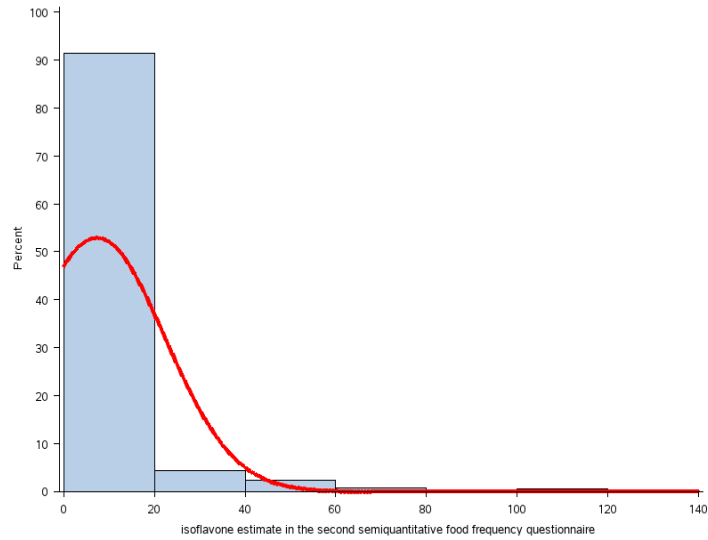
7DDR, weighed 7-day diet record; MLVS, Men's Lifestyle Validation Study; SD, standard deviation; SFFQ, semiquantitative food frequency questionnaire; WLVS, Women's Lifestyle Validation Study

*Values represent the average of two weeks of weighed dietary records

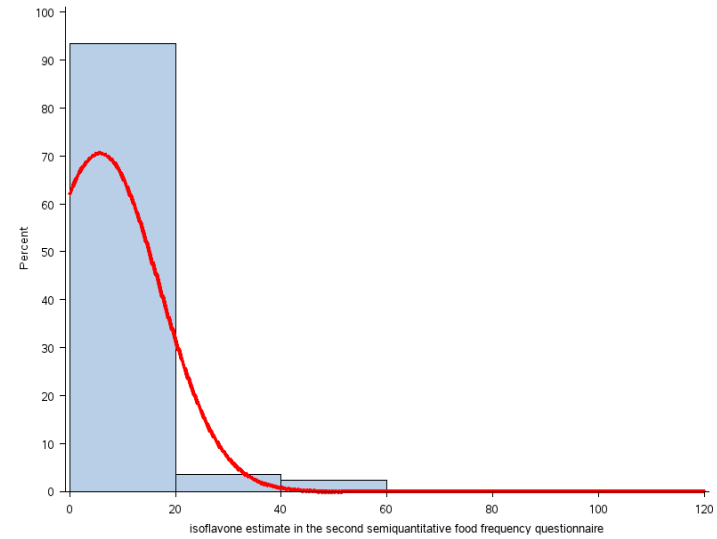
Supplementary Table 6. Rank Intraclass Correlation Coefficients of major food contributors to flavonoid intake using the 7-Day Dietary Records in MLVS and WLVS

	ICC*
Men	
Apple	0.49
Blueberry	0.55
Grapefruit	0.44
Onion	0.40
Orange	0.30
Orange juice	0.77
Soymilk	0.62
Red wine	0.75
Strawberry	0.31
Tea	0.80
Tofu	0.42
Women	
Apple	0.40
Blueberry	0.54
Grapefruit	0.22
Onion	0.33
Orange	0.11
Orange juice	0.75
Soymilk	0.77
Red wine	0.79
Strawberry	0.22
Tea	0.75
Tofu	0.27

MLVS, Men's Lifestyle Validation Study; r_s , Spearman rank correlation coefficient; WLVS, Women's Lifestyle Validation Study
 *Values represent the ICC comparing the first and second week of 7-Day Dietary Records



(a) MLVS



(b) WLVS

Supplementary Figure 2. Isoflavone distribution in the second semiquantitative food frequency questionnaire for (a) MLVS (b) WLVS

MLVS, Men's Lifestyle Validation Study; WLVS, Women's Lifestyle