

SUPPLEMENTARY DATA

Supplementary Table 1. Sources of case-control study participants by incident diabetes status

	Fracture study		Fracture/Colorectal cancer study		Breast cancer study		Total	
WHI study	OS		CaD trial		CaD trial			
	No DM	DM	No DM	DM	No DM	DM	No DM	DM
Unique Cases	318 (94.1%)	20 (5.9%)	1485 (93.7%)	100 (6.3%)	814 (93.5%)	57 (6.5%)	2617 (93.7%)	177 (6.3%)
Unique Controls	340 (95.0%)	18 (5.0%)	802 (93.1%)	59 (6.9%)	239 (93.4%)	17 (6.6%)	1381 (93.6%)	94 (6.4%)
Total							3998 (93.7%)	271 (6.3%)
CaD study Overlap								
Control in both Fracture/Colorectal cancer and Breast cancer studies							722 (95.3%)	36 (4.7%)
Fracture/Colorectal cancer case and Breast cancer control							1 (100%)	0
Fracture/Colorectal cancer control and Breast cancer case							47 (87.0%)	7 (13.0%)
Case in both Fracture/Colorectal cancer and Breast cancer studies							55 (94.8%)	3 (5.2%)
Total Participants							4823 (93.8%)	317 (6.2%)

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Supplementary Table 2. Backwards regression model for variable selection in Model 3

Variable Removed	Removal p-value	25(OH)D Odds Ratio	
		50-<75	>=75
Full Model	N/A	0.7935	1.0554
Langleys*	0.1901	0.8077	1.0746
Protein	0.8949	0.8075	1.0735
Fruits/Veggies	0.8393	0.8068	1.0734
Calcium	0.7530	0.8094	1.0772
Smoking	0.7316	0.8056	1.0727
Hx of Premature MI	0.6410	0.8062	1.0720
Fat	0.5817	0.8055	1.0766
Alcohol	0.5749	0.8107	1.0770
CVD	0.3829	0.8161	1.0823
Education	0.3293	0.8181	1.1029
Total Glycemic Load	0.2931	0.8127	1.0857
Multivitamin Use	0.2942	0.8418	1.1304
Hx of skin cancer	0.2388	0.8383	1.1167
Hormone therapy use	0.1831	0.8363	1.1168
Waist Circumference	0.1465	0.8221	1.0879
Physical Activity	0.1458	0.8009	1.0341

*Langleys were targeted for first removal for confounding with latitude

Variables forced in the model: age, ethnicity, latitude of WHI clinical center, season of blood draw, HT/DM/CaD arm, case-control status

Remaining variables in parsimonious model: BMI (p<.0001), hypertension (p=.003), fiber (p=0.010), magnesium (p=0.0235)

Supplementary Table 3. Odd ratios for the association of 25(OH)D and incident diabetes for control, unweighted, and weighted samples

25(OH)D	<50 nmol/L	50-<75 nmol/L		≥ 75 nmol/L	
		OR	CI	OR	CI
Controls Only	Reference	0.89	(0.58, 1.38)	1.38	(0.79, 2.42)
All Participants, Unweighted	Reference	0.86	(0.65, 1.13)	0.99	(0.68, 1.45)
All Participants, Weighted	Reference	0.89	(0.61, 1.30)	1.14	(0.68, 1.90)

Model adjusted for age, ethnicity, latitude of clinical center, month of blood draw, WHI study indicators, BMI, hypertension, fiber intake, and magnesium intake