

## Response to Invited Commentary

### Welles et al. Respond to “Low Vitamin D and Cardiovascular Disease”

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We appreciate the insightful commentary by Drs. Schneider and Michos (1). We have reanalyzed the data from our study (2) with adjustment for 3 categories of race/ethnicity: white, black, and other. The point estimates for the association between vitamin D and cardiovascular events were not appreciably altered by this substitution (Table 1). However, our participants were primarily white men; therefore, future studies in more racially diverse samples would be of interest to further explore racial differences, especially in light of the recent work by Powe et al. (3).

We appreciate the authors' reference to the methodological considerations involved in analyzing the data by season. We would like to clarify that in our study, we adjusted for season (not date) of blood draw, with 4 different categories: spring

(March–May), summer (June–August), fall (September–November), and winter (December–February). Analyzing the data using the cosinor approach (4) did not appreciably alter the point estimate (Table 2).

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**Table 1.** Association Between Baseline 25-Hydroxyvitamin D Level (<20 ng/mL vs. ≥20 ng/mL) and Subsequent Cardiovascular Events<sup>a</sup> (*n* = 323) After Multivariate Adjustment, by Race/Ethnicity, Among 946 Participants in the Heart and Soul Study, 2000–2012

Model <sup>b</sup>	2 Race Categories (White vs. Nonwhite)		3 Race Categories (White, Black, or Other)	
	HR	95% CI	HR	95% CI
Model 3 <sup>c</sup>	1.30	1.01, 1.67	1.25	0.97, 1.63
Model 4 <sup>d</sup>	1.11	0.85, 1.44	1.12	0.85, 1.46

Abbreviations: CI, confidence interval; HR, hazard ratio.

<sup>a</sup> Subsequent cardiovascular events were defined as heart failure, myocardial infarction, stroke, or cardiovascular mortality.

<sup>b</sup> Model numbers correspond to those in Table 2 of the paper by Welles et al. (2).

<sup>c</sup> Results were adjusted for age, sex, season of blood draw, college graduation, tobacco use, multivitamin use, physical activity, diabetes, hypertension, body mass index, and depression.

<sup>d</sup> Results were adjusted for all model 3 covariates plus systolic blood pressure, diastolic blood pressure, hemoglobin A<sub>1c</sub>, triglycerides, high-density lipoprotein cholesterol, C-reactive protein, phosphorus, parathyroid hormone, and fibroblast growth factor 23.

**Table 2.** Association Between Baseline 25-Hydroxyvitamin D Level (<20 ng/mL vs. ≥20 ng/mL) and Subsequent Cardiovascular Events<sup>a</sup> (*n* = 323) After Multivariate Adjustment, by Season of Blood Draw, Among 946 Participants in the Heart and Soul Study, 2000–2012

Model <sup>b</sup>	Adjusted for Season of Blood Draw		Adjusted by Consignor Approach	
	HR	95% CI	HR	95% CI
Model 3 <sup>c</sup>	1.30	1.01, 1.67	1.35	1.05, 1.73
Model 4 <sup>d</sup>	1.11	0.85, 1.44	1.15	0.89, 1.50

Abbreviations: CI, confidence interval; HR, hazard ratio.

<sup>a</sup> Subsequent cardiovascular events were defined as heart failure, myocardial infarction, stroke, or cardiovascular mortality.

<sup>b</sup> Model numbers correspond to those in Table 2 of the paper by Welles et al. (2).

<sup>c</sup> Results were adjusted for age, sex, white race/ethnicity, college graduation, tobacco use, multivitamin use, physical activity, diabetes, hypertension, body mass index, and depression.

<sup>d</sup> Results were adjusted for all model 3 covariates plus systolic blood pressure, diastolic blood pressure, hemoglobin A<sub>1c</sub>, triglycerides, high-density lipoprotein cholesterol, C-reactive protein, phosphorus, parathyroid hormone, and fibroblast growth factor 23.

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Conflict of interest: none declared.

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