Role of Vitamin D in Cardiovascular Disease

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BACKGROUND

- Cardiovascular disease (CVD) is the leading cause of death in the U.S. causing 600,000 deaths annually.
- Vitamin D receptor activation has been observed to affect cardiovascular health through renin-angiotensin system suppression.
- The relationship between vitamin D and cardiovascular health is controversial because some studies display a non-linear relationship while others have not demonstrated any relationship.
- Vitamin D deficiency is a global issue and may be a CVD risk factor.

OBJECTIVE

- The aim of this study was to investigate what levels of vitamin D are optimal for prevention of CVD.

RESULTS

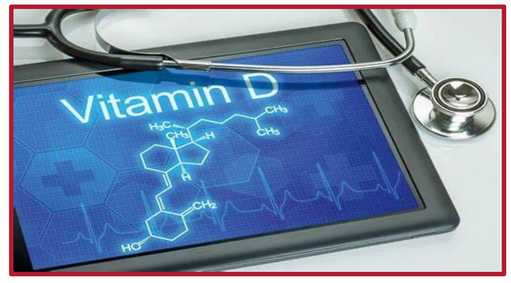
- 9825 participants met the study criteria for analysis

Variable	No CVD group (*n*=8797)	CVD group (*n*=1028)	Statistic	P-value
Age (year), mean (95% CI)	48.40 (48.04-48.75)	66.40 (65.66-67.15)	-42.77	**<.001**
Gender, *n* (%)				
Male	4108 (46.7)	596 (58.0)	-0.069	**<0.001**
Female	4689 (53.3)	432 (42.0)		
Race/Ethnicity *n* (%)				
Hispanic	2475 (28.1)	197 (19.2)	0.104	**<0.001**
Non-Hispanic White	2869 (32.6)	472 (45.9)		
Non-Hispanic Black	1865 (21.2)	247 (24.0)		
Other	1588 (18.1)	112 (10.9)		
Body Mass Index (kg/m^2) mean (95% CI)	29.60 (29.45-29.75)	30.87 (30.42-31.32)	-5.34	**<.001**
Blood Pressure *n* (%)				
No	5930 (67.4)	264 (25.7)	0.265	**<0.001**
Yes	2867 (32.6)	764 (74.3)		
Diabetes *n* (%)				
No	7465 (84.9)	610 (59.3)	0.204	**<0.001**
Yes	1332 (15.1)	418 (40.7)		
Cholesterol *n* (%)				
No	5995 (68.1)	374 (36.4)	0.204	**<0.001**
Yes	2802 (31.9)	654 (63.6)		
C-reactive protein n (%)				
<0.2	4514 (51.3)	423 (41.1)	0.062	**<0.001**
≥0.2	4283 (48.7)	605 (58.9)		
Total Vitamin D *n* (%)				
Deficiency	701 (8.0)	69 (6.7)	0.053	**<0.001**
Insufficiency	2062 (23.4)	190 (18.5)		
Normal	5670 (64.5)	700 (68.1)		
Adequacy	364 (4.1)	69 (6.7)		

METHODOLOGY

- Data were obtained from the 2015-2018 National Health and Nutrition Examination Surveys database.
- Variables included: CVD, vitamin D, gender, race/ethnicity, body mass index, blood pressure, diabetes, cholesterol, and c-reactive protein.
- Statistical approaches included descriptive statistics, chi-square tests, t-tests, and regression analysis.

CONCLUSION



- Healthcare professionals may consider recommendation of vitamin D supplementation to improve cardiovascular health in U.S. adults aged 20+ years old.

Acknowledgments: RUUTE Summer Research Program, Roseman University College of Dental medicine Clinical Outcomes Research and Education