# Supplemental Online Content

Chandler PD, Chen WY, Ajala ON, et al; VITAL Research Group. Effect of vitamin $D_3$ supplements on development of advanced cancer: a secondary analysis of the VITAL randomized clinical trial. *JAMA Netw Open*. 2020;3(11):e2025850. doi:10.1001/jamanetworkopen.2020.25850



This supplemental material has been provided by the authors to give readers additional information about their work.

**eTable 1. Hazard Ratios (HR) and 95% Confidence Intervals (CI) of Other Cancers by Randomized Vitamin D, All Years of Follow-up[a]**

| | No of Events | | | | |
|---|---|---|---|---|---|
| **Outcome** | **Active Treatment (N=12,927)** | **Placebo (N=12,944)** | **HR** | **95%CI** | **P-value** |
| **Confirmed Cancer + Cancer Death** | | | | | |
| Bladder Cancer | 13 | 23 | 0.57 | 0.29-1.12 | 0.10 |
| Brain Cancer | 10 | 11 | 0.91 | 0.39-2.15 | 0.83 |
| Cervical Cancer | 2 | 3 | 0.67 | 0.11-4.01 | 0.66 |
| Esophageal Cancer | 10 | 12 | 0.84 | 0.36-1.95 | 0.69 |
| Other female genital | 2 | 4 | 0.50 | 0.09-2.73 | 0.43 |
| Pancreatic Cancer | 28 | 32 | 0.88 | 0.53-1.46 | 0.61 |
| Stomach Cancer | 13 | 7 | 1.86 | 0.74-4.67 | 0.18 |
| Thyroid Cancer | 10 | 12 | 0.83 | 0.36-1.93 | 0.67 |
| Uterine Cancer | 35 | 20 | 1.75 | 1.01-3.03 | 0.046 |
| Kidney Cancer | 18 | 23 | 0.78 | 0.42-1.45 | 0.44 |
| Leukemia Cancer | 22 | 22 | 1.00 | 0.56-1.81 | 0.99 |
| Liver Cancer | 7 | 12 | 0.59 | 0.23-1.49 | 0.26 |
| Lung Cancer | 74 | 74 | 1.00 | 0.73-1.38 | 0.99 |
| Lymphoma Cancer | 23 | 32 | 0.72 | 0.42-1.23 | 0.24 |
| Melanoma Cancer | 51 | 53 | 0.96 | 0.66-1.42 | 0.85 |
| Multiple Myeloma Cancer | 10 | 15 | 0.67 | 0.30-1.49 | 0.33 |
| Ovarian Cancer | 8 | 9 | 0.89 | 0.34-2.31 | 0.81 |

*[a]Analyses were from Cox regression models that were controlled for age, sex, and omega-3 fatty acid randomization group. Analyses were not adjusted for multiple comparisons. Analyses were done as intention-to-treat over all years of follow-up*

**eTable 2. Hazard Ratios (HR) and 95% Confidence Intervals (CI) of Specific Cancers and Mortality by Randomized Vitamin D[a]**

| | No of Events | | | | |
|---|---|---|---|---|---|
| **Disease Outcome** | **Vitamin D (N=12,927)** | **Placebo (N=12,944)** | **HR** | **95% CI** | **P-value** |
| **Confirmed Metastatic Cancer** | | | | | |
| Metastatic breast cancer | 2 | 2 | 1.00 | 0.14–7.09 | 1.00 |
| Metastatic prostate cancer | 3 | 8 | 0.38 | 0.10–1.42 | 0.15 |
| Metastatic colorectal cancer | 6 | 4 | 1.51 | 0.42–5.34 | 0.53 |
| **Death** | | | | | |
| Death from breast cancer | 6 | 3 | 2.00 | 0.50–7.99 | 0.33 |
| Death from prostate cancer | 3 | 9 | 0.34 | 0.09–1.24 | 0.10 |
| Death from colorectal cancer | 9 | 14 | 0.65 | 0.28–1.50 | 0.31 |
| **Confirmed Metastatic Cancer or Cancer** | | | | | |
| Metastatic breast cancer / breast cancer death | 6 | 4 | 1.50 | 0.42–5.30 | 0.53 |
| Metastatic prostate cancer / prostate cancer death | 6 | 14 | 0.43 | 0.17–1.12 | 0.09 |
| Metastatic colorectal cancer / colorectal cancer death | 12 | 15 | 0.81 | 0.38–1.73 | 0.58 |

[a]*Analyses were from Cox regression models that were controlled for age, sex, and omega-3 fatty acid randomization group. Analyses were not adjusted for multiple comparisons. Analyses were done as intention-to-treat over all years of follow-up*

| eTable 3. Randomized Vitamin D, Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Total Metastatic and Cancer Mortality by Race[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | No. Events in Groups | | Hazard Ratio | | P-Interaction |
| Subgroup Category | Total | Vitamin D | Placebo | HR (95%CI) | P-value | P-value |
| | **Total Metastatic Cancer/ Cancer Mortality** | | | | | |
| **Race** | **25,304** | | | | | 0.94 |
| Non-Hispanic White | 18,046 | 163 | 205 | 0.80 (0.65–0.98) | 0.03 | |
| Black | 5,106 | 40 | 46 | 0.86 (0.56–1.32) | 0.49 | |
| Other | 2,152 | 16 | 19 | 0.86 (0.44-1.66) | 0.65 | |
| | **Total Metastatic Cancer** | | | | | |
| **Race** | **25,304** | | | | | 0.25 |
| Non-Hispanic White | 18,046 | 69 | 91 | 0.76 (0.56–1.04) | 0.09 | |
| Black | 5,106 | 6 | 13 | 0.46 (0.17–1.20) | 0.11 | |
| Other | 2,152 | 9 | 6 | 1.50 (0.53-4.22) | 0.44 | |
| | **Cancer Mortality** | | | | | |
| **Race** | **25,304** | | | | | 0.40 |
| Non-Hispanic White | 18,046 | 106 | 135 | 0.79 (0.61–1.02) | 0.07 | |
| Black | 5,106 | 37 | 35 | 1.06 (0.67–1.68) | 0.81 | |
| Other | 2,152 | 8 | 14 | 0.58 (0.24-1.38) | 0.22 | |

*[a]Analyses were from Cox regression models that were controlled for age, sex, and omega-3 fatty acid randomization group. Analyses were not adjusted for multiple comparisons. Analyses were done as intention-to-treat over all years of follow-up.*