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Taking vitamin D with the largest meal improves absorption and results in higher serum levels of 25-hydroxyvitamin D.

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CONTEXT: Many patients treated for vitamin D deficiency fail to achieve an adequate serum level of 25-hydroxyvitamin D (25OHD) despite high doses of ergo- or cholecalciferol **OBJECTIVE:** To determine whether administration of vitamin D supplement with the largest meal of the day will improve absorption and increase serum levels of 25OHD **DESIGN:** Prospective cohort **SETTING:** Ambulatory tertiary-care referral center **PATIENTS:** Patients seen at the Cleveland Clinic Foundation Bone clinic for treatment of vitamin D deficiency not responding to treatment **INTERVENTION:** Take the same vitamin D supplement with the largest meal of the day **MAIN OUTCOME MEASURE:** Serum 25OHD level after 2-3 months **RESULTS:** Seventeen patients were analyzed. The mean age (+/-SD) and sex (F/M) ratio were 64.5 +/- 11.0 years and 13/4, respectively. The dose of 25OHD ranged from 1000 to 50,000 international units (IU) daily. The mean baseline serum 25OHD level (+/-SD) was 30.5 +/- 4.7 (range 21.6 - 38.8) ng/mL. The mean serum 25OHD after diet modification (+/-SD) was 47.2 +/- 10.9 (range 34.7 - 74.0) ng/mL ($p < 0.01$). Overall, the average serum 25OHD level increased by 56.7 +/- 36.7%. A subgroup analysis based on the weekly dose of vitamin D was performed and a similar trend was observed. **CONCLUSION:** Taking vitamin D with the largest meal improves absorption and results in about a 50% increase in serum levels of 25OHD. Similar increases were observed in a wide range of vitamin D doses taken for a variety of medical conditions. (c) 2010 American Society for Bone and Mineral Research.

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