The number of dairy cows without access to pasture or sunlight is increasing; therefore, the content of vitamin D in dairy products is decreasing. Ultimately, declining vitamin D levels in dairy products will mean that dairy products are a negligible source of natural vitamin D for humans. We tested the ability of a specially designed UVB lamp to enhance the vitamin D-3 content in milk from dairy cows housed indoors. This study included 16 cows divided into 4 groups. Each group was exposed daily to artificial UVB light simulating 1, 2, 3, or 4 h of summer sun at 56 degrees N for 24 d, and the group with simulated exposure to 2 h of summer sun daily continued to be monitored for 73 d. We found a significant increase in 25-hydroxyvitamin D-3 (25OHD(3)) levels in plasma as well as vitamin D-3 and 25OHD(3) levels in milk after daily exposure for 24 d in all treatment groups. Extending daily exposure to artificial UVB light to 73 d did not lead to an increase of vitamin D-3 or 25OHD(3) level in the milk. In conclusion, the change in production facilities for dairy cows providing cows with no access to pasture and sunlight causes a decrease of vitamin D levels in dairy products. This decrease may be prevented by exposing cows to artificial UVB light in the stable.