Menopause and type II diabetes represent a twin challenge due to negative influences of the menopause on insulin function and glucose homeostasis, on weight gain, sexual problems, cardiovascular risk. Postmenopausal women with type II diabetes have a significantly increased risk for breast, endometrial and other forms of cancer and for osteoporotic fractures. Beyond its role in bone and mineral homeostasis, vitamin D exerts extraskeletal, metabolic effects. There are established links between vitamin D, glucose metabolism and insulin sensitivity due to the direct actions of vitamin D on insulin action and secretion. Vitamin D deficiency appears to be related to impaired β-cell function, insulin resistance, impaired glucose tolerance and the development of metabolic syndrome and type II diabetes in postmenopausal women. Vitamin D sufficiency appears to be associated with lower risk of diabetes among postmenopausal women, regardless of skin color; this protective effect is maintained in women>70 years. Epidemiological studies suggest a beneficial role for vitamin D supplementation in reducing the risk of type II diabetes in postmenopausal women. Prediabetic patients with the highest vitamin D levels have lower risk for progressing to type II diabetes. The optimal vitamin D levels for type II diabetes prevention are under current investigation.