

The AusD study: a population-based study of the determinants of serum 25-hydroxyvitamin D concentration across a broad latitude range

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Abstrak

Observational studies suggest that people with a high serum 25-hydroxyvitamin D (25(OH)D) concentration may have reduced risk of chronic diseases such as osteoporosis, multiple sclerosis, type 1 diabetes, cardiovascular disease, and some cancers. The AusD Study (A Quantitative Assessment of Solar UV Exposure for Vitamin D Synthesis in Australian Adults) was conducted to clarify the relationships between ultraviolet (UV) radiation exposure, dietary intake of vitamin D, and serum 25(OH)D concentration among Australian adults residing in Townsville (19.3°S), Brisbane (27.5°S), Canberra (35.3°S), and Hobart (42.8°S). Participants aged 18-75 years were recruited from the Australian Electoral Roll between 2009 and 2010. Measurements were made of height, weight, waist:hip ratio, skin, hair, and eye color, blood pressure, and grip strength. Participants completed a questionnaire on sun exposure and vitamin D intake, together with 10 days of personal UV dosimetry and an associated sun-exposure and physical-activity diary that was temporally linked to a blood test for measurement of 25(OH)D concentration. Ambient solar UV radiation was also monitored at all study sites. We collected comprehensive, high-quality data from 1,002 participants (459 males, 543 females) assessed simultaneously across a range of latitudes and through all seasons. Here we describe the scientific and methodological issues considered in designing the AusD Study.