

## Estimated intake of vitamin D is low in Aboriginal and Torres Strait Islander people

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Despite high UVB radiation from the sun in Australia (the primary source of vitamin D), vitamin D deficiency (serum 25-hydroxyvitamin D concentrations [25(OH)D] <50 nmol/L) is prevalent among Aboriginal and Torres Strait Islander peoples (27% of adults nationally; 39% of adults living in remote areas)<sup>(1)</sup>. Vitamin D deficiency affects musculoskeletal health and may be associated with non-communicable diseases, such as type 2 diabetes and cardiovascular diseases, prevalent in Aboriginal and Torres Strait Islander peoples.<sup>(2,3)</sup> Alternative to UVB radiation, vitamin D can also be obtained from foods (e.g., fish, eggs, and meat) and supplements. However, vitamin D intake in Aboriginal and Torres Strait Islander peoples is currently unknown. Hence, we aimed to provide the first estimate of absolute vitamin D intake in Aboriginal and Torres Strait Islander peoples. We used food consumption data from the 2012-2013 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey and vitamin D food composition data for vitamin D<sub>3</sub>, 25(OH)D<sub>3</sub>, vitamin D<sub>2</sub>, and 25(OH)D<sub>2</sub>. Absolute vitamin D intake was estimated by sex and remote and non-remote areas using bioactivity factors (BF) of 1 and 5 for 25(OH)D, which may be up to five times more bioactive than vitamin D. The estimated average requirement for vitamin D intake recommended by the Institute of Medicine is 10 µg/day<sup>(4)</sup>. The estimated absolute vitamin D intake from food and beverages was low for Aboriginal and Torres Strait Islander peoples. The mean estimated absolute vitamin D intake of Aboriginal and Torres Strait Islander peoples was 2.9 µg/day and 5.3 µg/day for BF 1 and 5, respectively. Males had a higher mean intake (3.2 µg/day, BF 1 and 5.9 µg/day, BF 5) than females (2.6 µg/day, BF 1 and 4.7 µg/day, BF 5). Vitamin D intake was 2.9 µg/day (BF 1) and 5.2 µg/day (BF 5) in non-remote and 2.8 µg/day (BF 1) and 5.4 µg/day (BF 5) in remote areas. The high prevalence of vitamin D deficiency and low vitamin D intake highlights a need to promote vitamin D sufficiency through public health policies. The results from this study can be used to model food fortification strategies to provide evidence for the development of nutrition policies to improve the vitamin D status of the Aboriginal and Torres Strait Islander population.

**Keywords:** Vitamin D intake; Aboriginal and Torres Strait Islander people; Australia

### Ethics Declaration

Yes

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