

with other risk factors) are advised to adopt a very cautious approach to sun exposure when the UV index is ≥ 3 .²⁴

- In Australia, for people with an intermediate risk of skin cancer (olive or pale brown skin with no other risk factors), sun protection is important but it should be balanced with spending sufficient time outdoors with ample skin exposed to avoid vitamin D deficiency.²⁴ How much time outdoors depends on many factors, including skin surface area exposed, skin tone and latitude (which makes a difference, particularly in winter). As a rough guide for most people with olive or pale brown skin, exposure of approximately 15% of body surface (ie hands, face and arms) for 5–10 minutes on most days of the week in summer around mid-morning and mid-afternoon should maintain vitamin D levels.¹⁸
- For those with constitutively dark skin, who are at low risk of skin cancer but need higher doses of UVB to make adequate vitamin D, sun protection measures are not needed unless spending extended times outdoors when the UV index is ≥ 3 .²⁴

Sun exposure in winter should be with as much skin uncovered as practical, considering external temperature, and during the middle of the day, if possible.^{18,24} Tables showing approximate exposure times for different seasons, skin colours, latitudes and clothing styles (shorts and T-shirt or long sleeves and long pants) are available.²⁴ Sunscreen use blocks vitamin D synthesis in the laboratory, but does not have a major effect in practice on vitamin D status; time in the sun and surface area exposed are more important.²⁴ Body fat is also relevant because obesity is associated with less vitamin D synthesis with vitamin D distribution into fat stores, resulting in lower blood levels of 25(OH)D.²⁵

The current RDI of vitamin D in Australia in individuals aged >50 years is 400 IU (10 mcg) per day, rising to 600 IU (15 mcg) per day in those aged >70 years.^{26,27} Useful amounts of vitamin D3 can be acquired through food, such as canned salmon, which has approximately 19 mcg (770 IU) vitamin D3 per 100 g, fresh Atlantic salmon (~5 mcg [200 IU] vitamin D3 per 100 g) or fresh white fish (up to 3.5 mcg [140 IU] vitamin D3 per 100 g).³ These new data suggest that fish may be a useful source of vitamin D, particularly during winter.²¹

Calcium and vitamin D supplementation

There is a large body of evidence to support the role of calcium and vitamin D in the maintenance of bone health.^{8,28} The role of calcium and vitamin D supplementation in the treatment of osteoporosis has also been extensively studied in clinical trials. Although calcium and vitamin D supplements have been widely used to prevent bone loss and fractures in postmenopausal women and older men, the use of these supplements continues to be controversial, with studies indicating both no significant association¹ and reduced fracture risk.²⁹ However, these studies were mostly in healthy, non-institutionalised individuals with limited participants who had low baseline vitamin D status.

Evidence indicates that the absolute benefit of these treatments in terms of short-term (less than five years) fracture prevention for non-institutionalised individuals is relatively low and considerably less than that seen with licensed osteoporosis treatments, such as bisphosphonates or denosumab.^{8,29} The US Preventive Services Task Force has recommended against routine calcium and vitamin D supplementation in non-institutionalised older people.³⁰ However, there is reasonable evidence of benefit for those who may be deficient, particularly institutionalised individuals or frail older people.³¹