Medical Rationale: Vitamin D and the Summer Solstice (21st June 2026 – Longest Day)

Key message: Longer daylight and more direct UVB around the summer solstice maximize the potential for skin vitamin D synthesis, but safe-exposure guidance and individual factors remain essential.[1,3,9]

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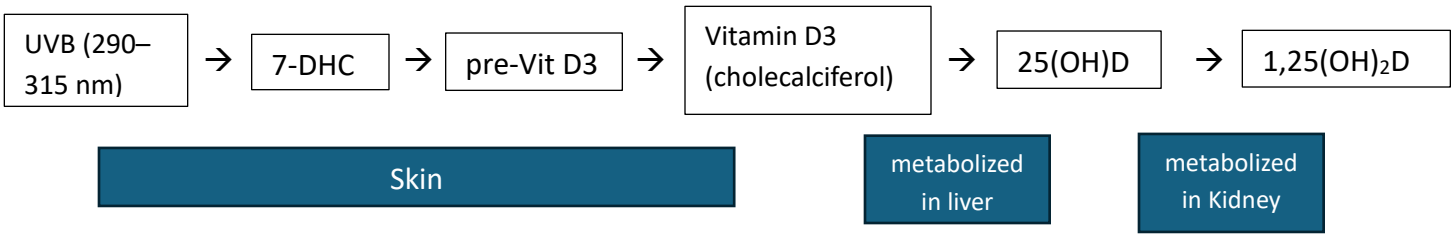
1) Photoperiod → Vitamin D: core biology[1,2]



2) Why the solstice matters (sun geometry + longest photoperiod)

- At/near the summer solstice, the solar zenith angle is smaller and UVB intensity is higher; the daylight window for UVB-driven synthesis is longer than in winter.[2,3]
- Peak synthesis occurs around solar noon; longer days increase the opportunity for short, non-erythemal exposures when more skin is uncovered.[3,10,11]

3) Practical medical implications around the longest day

- Use the solstice as an 'awareness anchor' to discuss vitamin D, especially in patients at risk of deficiency (limited outdoor time, covered clothing, darker skin, obesity, older age).[1,3]
- Counsel safe sun exposure: brief, repeated exposures that avoid sunburn; the same UV that makes vitamin D can also cause erythema and contribute to skin cancer risk.[8,10,13,14]

4) Diet/supplementation considerations

- Consider dietary sources and supplementation (D3 or D2) when sun exposure is limited or risk outweighs benefit - particularly outside peak UVB months.[14,15]
- Supplementation benefits for cardiometabolic outcomes are context-dependent and heterogeneous; tailor to baseline 25(OH)D and guideline targets.[15]

Note: *In patients with severe renal insufficiency, Calcitriol is the preferred form of vitamin D supplementation.*[16]

UVB: Ultraviolet B rays
7-DHC: 7-Dehydrocholesterol
25(OH)D: 25-hydroxyvitamin D
1,25(OH)$_2$D: 1,25-dihydroxyvitamin D

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