

# WHEN IT COMES TO VITAMIN D, TWO SOURCES ARE BEST:

**A whole food, lifestyle approach to addressing vitamin D deficiency**

*"Did you know that Australians spend over \$100M a year on vitamin D supplements, yet 1 in 4 are vitamin D deficient? It is my pleasure to share with you the findings from a first-of-its-kind research, highlighting the importance of diet as a second source of vitamin D."*



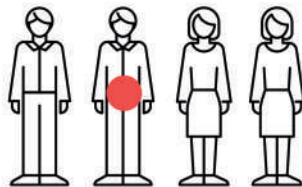
Flavia Fayet-Moore, PhD, MNutDiet, RNutr, APD, FASLM  
CEO Nutrition Research Australia



## UNDERSTANDING THE PROBLEM IN AUSTRALIA

23%

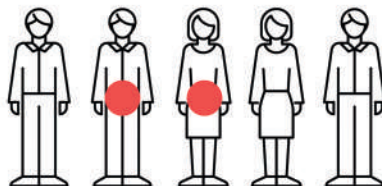
Serum 25(OH)D <50nmol/L



**Almost 1 in 4 Australians are vitamin D deficient<sup>1</sup>**  
results in impaired bone health

43%

Serum 25(OH)D 50 to <75 nmol/L



**2 in 5 Australians are vitamin D insufficient<sup>2</sup>**  
may increase the risk of other disease outcomes

Vitamin D deficiency is also a public health problem worldwide



Watch the free Vitamin D webinar: [nraus.com/blog-webinar-vitamind-2019](https://nraus.com/blog-webinar-vitamind-2019)



## FACTORS THAT INCREASE DEFICIENCY RISK<sup>2-4</sup>

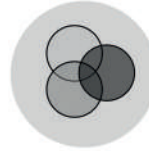
### NON-MODIFIABLE



Higher latitude



Winter



Low and high phototype



Born outside Australia



Older age

### MODIFIABLE



Low dietary sources



Smokers



Lower physical activity



BMI >30 kg/m<sup>2</sup>



Limited sun exposure



Not taking supplements

### DID YOU KNOW?

Vitamin D receptors are in nearly every tissue and thousands of binding sites on our genome, controlling over 200 genes, and are thus implicated in many other diseases beyond bone health<sup>5</sup>



### SUN EXPOSURE GUIDELINES

In winter, the recommended time increases substantially



Minutes needed to reach 1000 IU (25µg) with 15% of the body exposed (hands, face and arms)<sup>6</sup>



### CURRENT VITAMIN D GUIDELINES

RACGP guidelines recommend one source to address vitamin D deficiency: sun exposure or supplements<sup>4</sup>

At risk

<50 nmol/L



Screen

Mild deficiency

30-49 nmol/L



Sun exposure

Moderate to severe deficiency

<30 nmol/L



Supplements

"There are few opportunities in Australia to obtain the equivalent of 1000 IU 25(OH)D within a realistic duration while adhering to sun smart messages"<sup>7</sup>



Sun exposure guidelines for 25(OH)D adequacy are ineffective in winter in Australia<sup>8</sup>



### DIETARY INTAKES ARE ALSO BELOW TARGETS

"Given our increasingly indoor lifestyles, there is a need to develop and promote strategies to maintain adequate vitamin D status through safe sun exposure and dietary approaches"<sup>2</sup>

2-3 µg  
80-120 IU

AVERAGE DIETARY INTAKE<sup>6</sup>

5 µg  
200IU

0-50 y

10 µg  
400 IU

51-70 y

15 µg  
600 IU

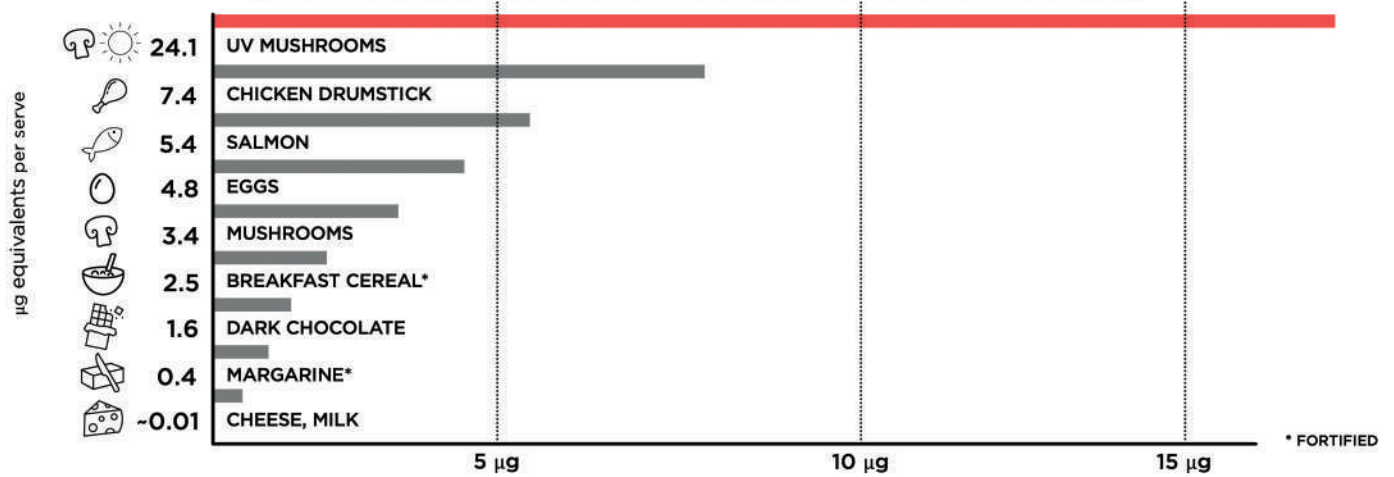
>70 y

ADEQUATE INTAKE BY AGE GROUP<sup>9</sup>



Margarine, which is mandatorily fortified with vitamin D, is the leading contributor to vitamin D intake<sup>6</sup>

## THERE ARE FEW GOOD SOURCES OF VITAMIN D<sup>10,11</sup>



## MUSHROOMS IN SUNLIGHT FOR 10-60 MINUTES INCREASES VITAMIN D UP TO 10x<sup>10,12</sup>

2-3 µg



UV



24 µg

100 grams (5 button or 1 portobello) of UV-exposed mushrooms provides almost 1000 IU vitamin D

## INCREASING YOUR MUSHROOM'S VITAMIN D



## TIPS TO RETAIN VITAMIN D



### REFRIGERATE

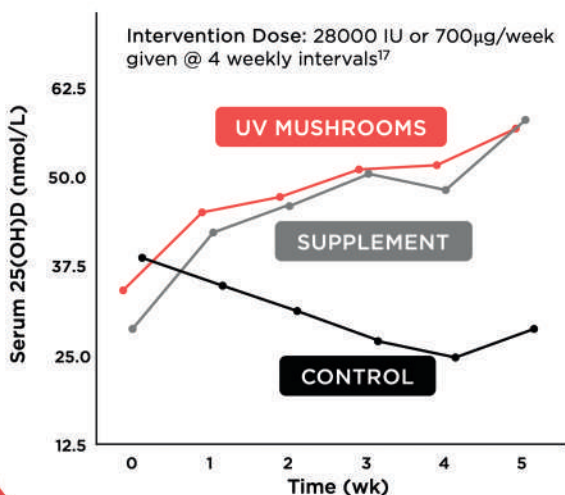
Sun exposed mushrooms retain vitamin D for up to 8 days<sup>15</sup>



### PAN FRYING

Lemon juice increases vitamin D retention. Cook with it to help increase non-heme (plant based) iron absorption as well<sup>16</sup>

## UV MUSHROOMS = SUPPLEMENTATION



Results from a meta-analysis show that in those who are deficient, UV exposed mushrooms are as effective as supplements at increasing vitamin D levels<sup>18</sup>

Mushroom soup made with UV exposed mushrooms

Mushroom soup made with regular mushrooms plus a vitamin D pill

Mushroom soup made with regular mushrooms

## THERE'S MORE TO MUSHROOMS

- A** Alpha and beta glucans
- B** Bioactive phytonutrients
- C** Carbohydrate profile (fibrous)
- D** Vitamin D
- E** Ergothioneine
- F** Flavonoids

## CONSIDERATIONS WHEN RECOMMENDING DIETARY APPROACHES

- Individual & family food preferences
- Access to the food
- Cooking skills
- Lower risk of toxicity and skin cancer
- Compliance - may be higher or lower

## LIFESTYLE AX CHECKLIST FOR VITAMIN D DEFICIENCY

	DECREASED RISK	INCREASED RISK
<b>Non-Modifiable</b>		
Season	<input type="checkbox"/> Spring/Summer	<input type="checkbox"/> Autumn/Winter
Phototype	<input type="checkbox"/> Olive (III,IV)	<input type="checkbox"/> Dark or pale (I, II, V, VI)
Office worker	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<b>Modifiable</b>		
Smoking	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Supplement	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Sun exposure (time outdoors)	<input type="checkbox"/> Some	<input type="checkbox"/> None
<b>Diet</b>		
Fish	<input type="checkbox"/> Some	<input type="checkbox"/> None
Mushrooms	<input type="checkbox"/> Some	<input type="checkbox"/> None
Eggs	<input type="checkbox"/> Some	<input type="checkbox"/> None

Use this checklist to help determine which of your clients are at risk. The more ticks for 'increased risk', the greater the need for intervention.

Consider the modifiable factors first, and what your patient or client is willing to change.

### Benefits of lifestyle recommendations for vitamin D



Diet

- ✓ Encourages whole foods
- ✓ Meal occasion and social connectedness
- ✓ Additional essential nutrients and bioactives



Sun exposure

- ✓ Regulates melatonin release and sleep cycle
- ✓ Outdoor physical activity
- ✓ Stress relief

## KEY TAKEOUTS



Vitamin D deficiency is an issue in sunny Australia



Only sun exposure or supplements are recommended



Australians struggle to get enough sun exposure in winter



All strategies have limits - individualisation is key



Sun-exposed mushrooms are a leading source - as effective as supplements



To get vitamin D, tan your mushrooms instead of your skin



"When it comes to vitamin D, we need to consider more than one source. Combining evidence-based dietary strategies with current recommendations can significantly improve vitamin D status, and provide other important lifestyle benefits."

Flavia Fayet-Moore, PhD, MNutDiet, RNutr, APD, FASLM  
CEO Nutrition Research Australia

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- [info@nraus.com](mailto:info@nraus.com)
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