

# CAN YOU CLAIM VITAMIN D ON MUSHROOMS?

By Tim Cassettari, Accredited Dietitian, Nutrition Research Australia

Vitamin D deficiency is an increasing public health problem in Australia, with almost a quarter of Australians deficient. Mushrooms provide a unique solution to address this deficiency and would lend some 'nutrition heft' to any marketing campaign. However, before claims can be made about vitamin D, it is necessary to take a closer look at the vitamin and the specifics of the food regulations.

This R&D levy funded project explored Australia's food regulations and found that there is an opportunity for the mushroom industry to add a vitamin D claim.

## Is your current diet meeting vitamin D needs?

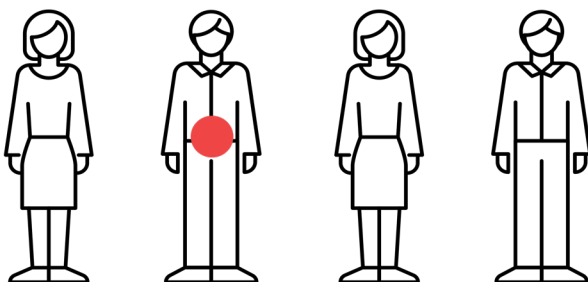
Probably not. For almost all (>95%) Australians, the answer to this question is 'no' [1]. Vitamin D is present in only a small number of foods - including oily fish, eggs, fortified margarine, some fortified breakfast cereals, and dark chocolate - and generally only in small amounts. Even if every bite you take is in accordance with the Australian Dietary Guidelines - vitamin D is the one vitamin that is difficult to obtain through food and drink alone [3].

For some sun-loving people, this may not be a problem; enough skin exposure to UV and we can make the 'sunshine' vitamin ourselves. Others have turned to vitamin D supplements. However, many people

get neither adequate sunlight nor take vitamin D supplements. In the 2011-12 Australian Health Survey, a nationally representative survey that included assessment of vitamin D status via blood tests, almost 1 in 4 (23%) Australians were deficient in vitamin D [4]. Deficiency rates were even higher in the more southern parts of the country - up to 49% in Victoria and the ACT in winter [4]. The risk of vitamin D deficiency can also increase for older Australians, smokers, people with more sedentary lifestyles, those born outside of Australia, and people with either very light or very dark skin [5, 6].

Why does any of this matter? Vitamin D plays a critical role in our overall health, and is essential for bone health, due to its role in calcium absorption and utilisation [7]. Additionally, vitamin D plays an important role in immunity, gene regulation, and supporting muscle function. Deficiency has also been associated

## VITAMIN D DEFICIENCY IS AN ISSUE IN AUSTRALIA



**Almost 1 in 4 Australians are vitamin D deficient** which results in impaired bone health

*“There is no other food that has the potential to provide as much vitamin D in a single serve, or to reverse current rates of vitamin D deficiency, as mushrooms.”*

- Tim Cassettari, Accredited Dietitian, Nutrition Research Australia

with increased risk of autoimmune diseases, high blood pressure, and increased infectious diseases [8]. With these substantial associated health consequences, vitamin D deficiency is widely established as a significant public health problem, both in Australia and globally.

### The opportunity for mushrooms

With few foods providing vitamin D, and caution over too much sunlight due to the risk of skin cancer, there are few clear solutions to this problem. Enter mushrooms, the only natural, non-animal source of vitamin D [9]. Data from 2015 showed that a 75 gram serve of common (*Agaricus bisporus*) mushrooms contains 15% of vitamin D needs [10]. When exposed to UV-light for as little as 10-15 minutes, their vitamin D content can increase more than 10-fold, and they can provide more than 100% of vitamin D needs [10, 11]. In a recent review, there was strong evidence that UV-exposed mushrooms not only increased vitamin D status, but that their efficacy was equivalent to that of vitamin D supplements [12].

### Investigating the food regulations for vitamin D claims

So, with all this good news, what's stopping the mushroom industry from claiming that mushrooms contain vitamin D? To help answer this, we need to look deeper at vitamin D and current food regulations.

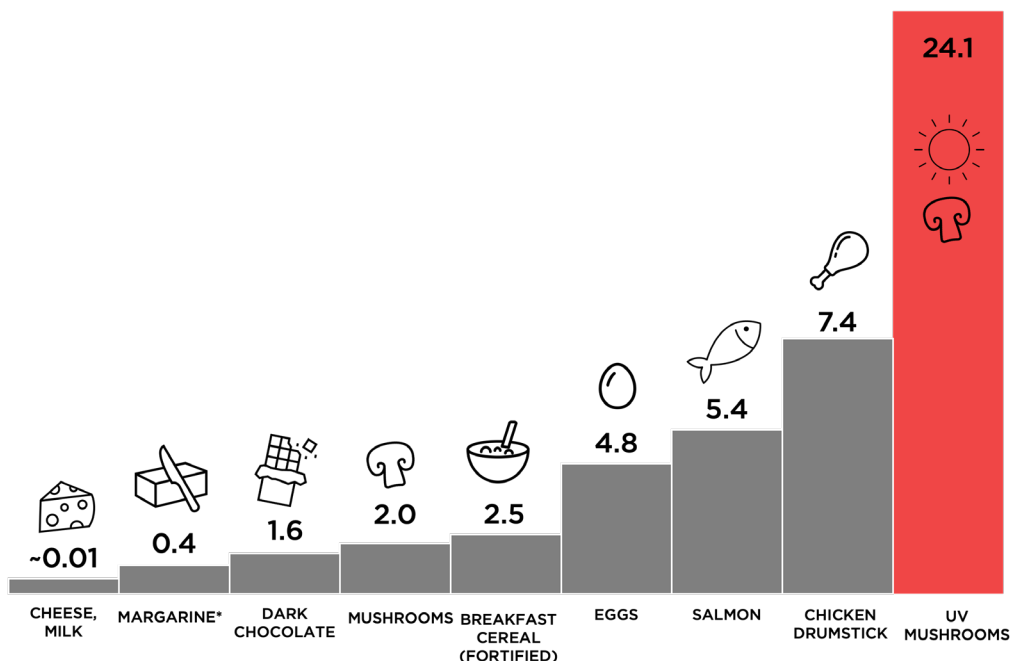
Vitamin D comes in two forms: vitamin D3 (cholecalciferol) and vitamin D2 (ergocalciferol). In most foods, the vitamin D is in the form of vitamin D3. Mushrooms are unique as they only contain vitamin D2 (not vitamin D3):

Currently, to substantiate a vitamin D claim, a serve of food must contain a minimum 10% of the regulatory Recommended Daily Intake (RDI) listed in the Food

*Vitamin D3 = cholecalciferol = animal sources of vitamin D (e.g., eggs, oily fish).*

*Vitamin D2 = ergocalciferol = non-animal sources of vitamin D (e.g., mushrooms).*

## COMPARISON OF FOOD SOURCES OF VITAMIN D ug equivalents per serve



Standards Code. The regulatory RDI for vitamin D is 10 µg cholecalciferol (vitamin D3), with no RDI provided for ergocalciferol (vitamin D2) [13]. It is therefore unclear if vitamin D claims for mushrooms would breach food regulations, as they contain 0 (zero) µg cholecalciferol.

To assess the likelihood of a vitamin D claim for mushrooms being a breach to food regulations, we (Nutrition Research Australia (NRAUS)) scoped the science and food regulations and consulted with key stakeholders. This lengthy process yielded exciting news: although there is a technical argument that a vitamin D claim on mushrooms *could* breach the Food Standards Code, this risk was considered **very low**. Furthermore, there was **no risk** of such a claim being misleading or deceptive to customers.

A recently held workshop also helped to educate and empower the industry on making such claims.

There is still more work to do to maximise vitamin D claims for mushrooms, including:

1. Developing an analytical testing program to validate the data from 2015 and to ensure that claims are always substantiated,
2. Communicating the mushroom and vitamin D story via advertisement and packaging, including an updated customer-facing website,

3. Exploring opportunities for new vitamin D health claims, such as vitamin D for heart health, and,
4. Considering industry-wide exposure of mushrooms to UV-B light, to strengthen the possible claims for vitamin D and to enable mushrooms to be a solution to a significant public health problem in Australia.

Mushrooms could provide a solution to a significant public health problem in Australia, which could have ramifications for mushrooms within Dietary Guidelines and other public health policies. The outcomes from this project are an exciting step forward in this direction.



### Easy to use claims document

View the document in the AMGA Digital Document Library, via the Members only area of the AMGA website:

[australianmushroomgrowers.com.au](http://australianmushroomgrowers.com.au)  
or contact the AMGA for a copy.



Tim Cassettari is an Accredited Practising Dietitian with 10+ years experience. His experience includes developing nutrition strategies, managing consumer and healthcare professional communication campaigns, conducting systematic reviews for health claims, and developing food education programs, for many of Australia's largest food brands. Overseeing a team of 20+ nutrition researchers and communicators at Nutrition Research Australia, Tim contributes to the senior management of all NRAUS projects.



**Hort Innovation**  
Strategic levy investment

**MUSHROOM FUND**

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