



# VITAMIN D, AN UPDATE CURRENT & FUTURE PERSPECTIVES

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Webinar key messages  
summarised for you.



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# THE VITAMIN D BASICS



## HOW IS VITAMIN D MADE?

Vitamin D is not a 'vital amine' in the true sense of the word, in fact it is a pro-hormone.

It is the only nutrient where the main source is not from the diet.

**7-DEHYDROCHOLESTEROL**  
(In our skin)

UVB exposure must be at 290-315nm



**VITAMIN D<sub>3</sub>**  
(Cholecalciferol)



**25-HYDROXYVITAMIN D**  
25(OH)D

Clinical marker of status

24,25(OH)<sub>2</sub>D



**CALCITROIC ACID**

In the UK, we only make vitamin D from sunlight from April to September!



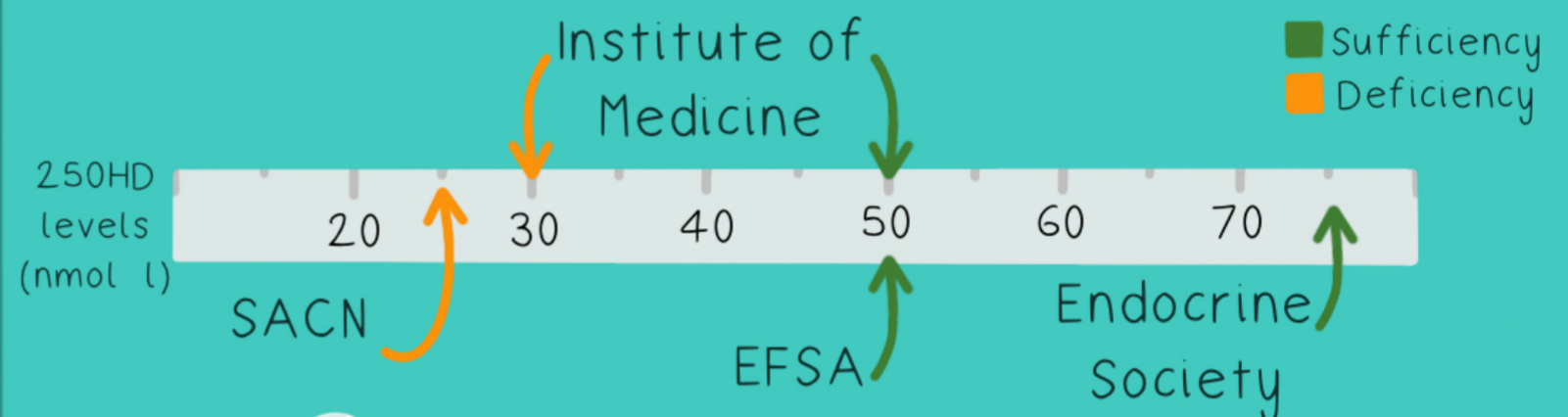
**1,25-DIHYDROXY VITAMIN D<sub>3</sub>**  
1,25(OH)<sub>2</sub>D<sub>3</sub>

Active hormone

1,24,25(OH)<sub>3</sub>D

## DEFINING VITAMIN D DEFICIENCY & SUFFICIENCY

Vitamin D levels defined as 'deficiency' differ between expert groups across the world.



Scientific understanding of vitamin D has come a long way. It is now recommended that everyone takes 10mcg of vitamin D each day, year round in the UK.

20-30 mins of UV exposure is enough. After this we don't make anymore vitamin D for that day!

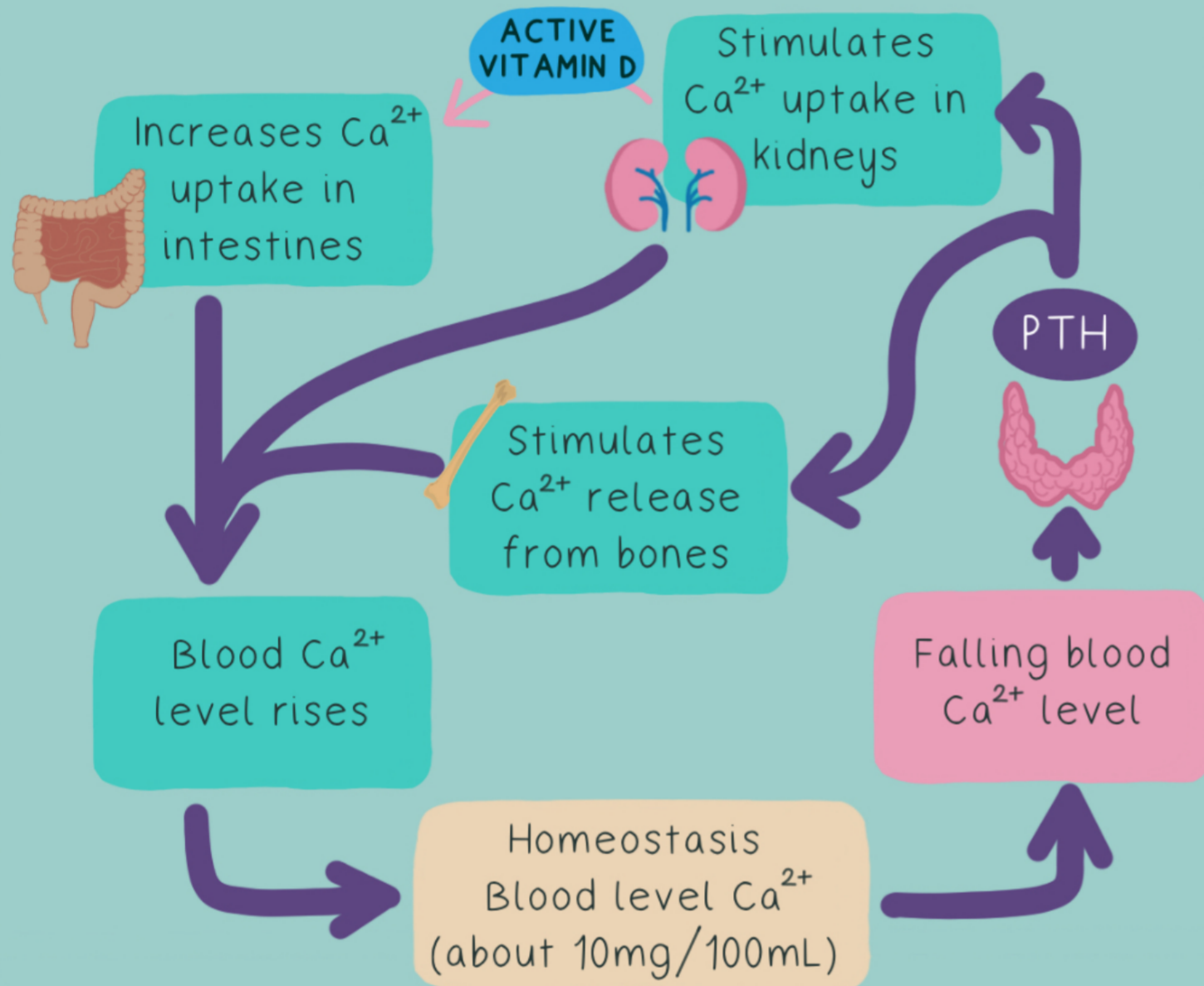
An easy way to tell if your body is making vitamin D is by looking at your shadow. When your shadow is longer than your height, you make no vitamin D!





# VITAMIN D & MUSCULO-SKELETAL HEALTH

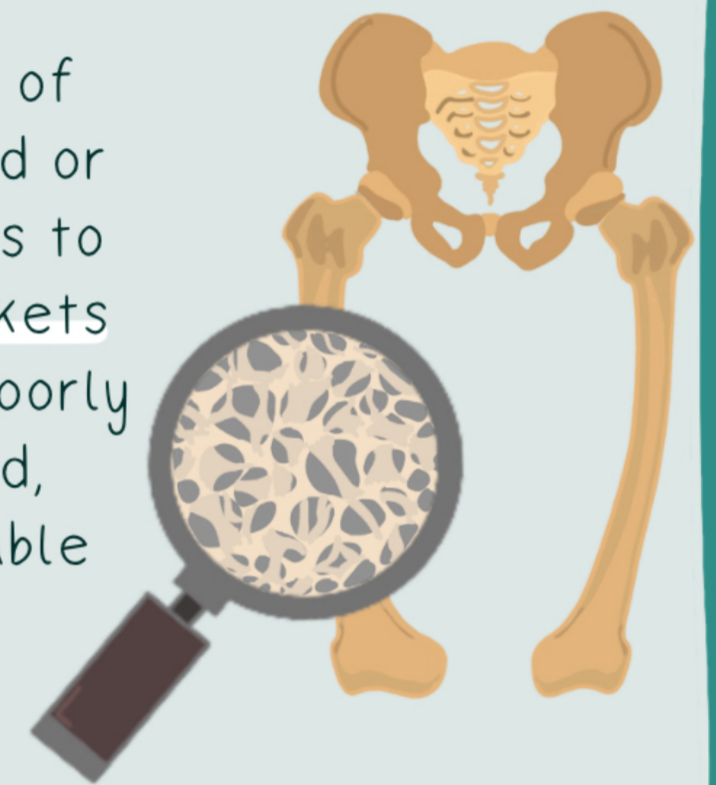
## VITAMIN D IS CRITICAL IN CALCIUM HOMEOSTASIS



## RICKETS & OSTEOMALACIA

Vitamin D plays an important role in muscle-skeletal health.

Low intakes of vitamin D and or calcium leads to childhood rickets resulting in poorly mineralised, easily bendable bone.



Adult form of rickets is Osteomalacia, which doesn't result in the same softening seen in rickets but does result in pain and increased susceptibility to infection.

Many people have mild osteomalacia in the winter, due to low UVB exposure.

Severe vitamin D deficiency over a long period of time will increase the risk of osteoporosis later in life.

## CHANGE IN BONE MASS WITH AGEING

Research shows that low vitamin D is associated with poor peak bone mass attainment and increased age related bone loss.

The effect is greatest in those with vitamin D deficiency (>25nm/l)



# VITAMIN D & IMMUNE FUNCTION



## VITAMIN D & RESPIRATORY HEALTH



There is a hypothesis that low vitamin D status in the winter months may be associated with seasonal upper respiratory tract infections.



There is controversy surrounding this suggested link because there are a number of other factors at play and a lack of good randomised controlled trials on the topic.

No evidence-based conclusions can be made yet, advice remains to ensure adequate vitamin D intake to support the normal functioning of the immune system.



## RESEARCH IN THE SPOTLIGHT

A meta-analysis published in 2016 reported that vitamin D supplementation protected against acute respiratory tract infections.

However, there were a number of important limitations which were highlighted to the authors by concerned academics.



A follow up study addressing some of the limitations concluded that the size of the effect may have been overestimated.



The revised research found that the greatest reduction in risk was seen with daily doses of 10mcg. There is no benefit to taking large bolus doses less frequently.



## WHAT ABOUT COVID-19?

An early study on vitamin D and COVID-19 mortality received huge media attention and has been cited widely.

This study has been entirely disproved since, as it was revealed that the authors and data used in the paper were fabricated.



Prof. Lanham-New and colleagues have since published an evidence-based update on vitamin D and its link to COVID-19 in the BMJ.

WATCH OUR VITAMIN D & IMMUNE FUNCTION WEBINAR WITH PROF. MARTIN HEWISON TO LEARN MORE!



# SOURCES OF VITAMIN D

Safe sun exposure in the Summer months is the most effective way to meet vitamin D needs.



Just 10 minutes of exposure at lunchtime is enough to meet needs for people with white skin.



This increases to 25 minutes for people with brown or black skin.



Despite this, year round supplementation is still recommended to all population groups to ensure requirements are met.



## ? VITAMIN D2 VS VITAMIN D3 - ARE THEY THE SAME?

It has been thought that Vitamin D2 (plant sources) and vitamin D3 (animal sources) are equal.



New research has found vitamin D3 is

**50%**

more effective at raising 25OHD levels than vitamin D2.



## DIETARY SOURCES OF VITAMIN D



FORTIFIED DAIRY ALTERNATIVE



FORTIFIED CEREAL



VITAMIN D SUPPLEMENT (10MCG/D)



OILY FISH



EGGS



WILD MUSHROOMS

Similar to humans, mushrooms naturally produce vitamin D when exposed to UV light, so mushrooms grown in the wild or under a UV lamp are a good source of dietary vitamin D.



### DID YOU KNOW?



You can even boost the vitamin D content of your mushrooms by leaving them in a sunny windowsill!