Which vitamin D product when?

Importance of vitamin D

Severe vitamin D deficiency can result in rickets (among children) and osteomalacia (among children and adults)[1]. Vitamin D deficiency should be treated to prevent skeletal complications[2].

Sources of vitamin D in the UK

The main natural source is from the action of sunlight on skin. However, from mid-October to the beginning of April in the UK there is no ambient ultraviolet sunlight of the appropriate wavelength for skin synthesis of vitamin D[1]. Dietary sources of vitamin D are limited. The British Dietetic Association (BDA) has a useful Food factsheet outlining sources of vitamin D: https://www.bda.uk.com/foodfacts/VitaminD.pdf

Should vitamin D supplementation be recommended to prevent chronic diseases?

Clear evidence of benefit over harm for vitamin D is not available, therefore, vitamin D supplements should not be recommended for prevention of chronic diseases (e.g. cardiovascular disease, cancer, chronic obstructive lung disease, multiple sclerosis or diabetes)[2].

When to test for vitamin D levels?

Health professionals should not routinely test people's vitamin D status unless:

- they have symptoms of deficiency
- they are considered to be at particularly high risk of deficiency (for example, they have very low exposure to sunlight)
- there is a clinical reason to do so (for example, they have osteomalacia or have had a fall)[1].

Public Health England (PHE) recommends that everyone considers taking a 10 micrograms (400 units) daily vitamin D supplement in autumn and winter, and high risk groups take 10 micrograms daily all year round[3].

During the spring and summer, the majority of the population will get enough vitamin D through sunlight on the skin and through a balanced diet. During autumn and winter, PHE recommends that people should consider taking dietary supplements to make up the shortfall as attaining the advised 10 microgram intake is difficult through normal dietary means[3].

Individuals who are advised to take dietary supplements all year round to meet the recommended intake are[3]:

- people whose skin has little or no exposure to the sun (e.g. living in institutions such as care homes)
- people who always cover their skin when outside
- dark-skinned ethnic minority groups (e.g. from African, Afro-Caribbean, and South Asian backgrounds).

In addition to this advice for the wider population, the guidance also suggests[3]:

- babies should be exclusively breastfed until around 6 months of age
- a recommended intake of 8.5 to 10 micrograms of vitamin D per day for all infants from birth to 1 year of age
- a recommended intake of 10 micrograms of vitamin D per day for children aged 1 to 4 years.

Children receiving more than 500 ml of infant formula a day do not require dietary supplementation due to the formula already being fortified with vitamin D[3].

Note: The recommended reference nutrient intake (RNI) of 10 micrograms vitamin D per day is the same for pregnant and lactating women; this is a change from previous advice[4].

Healthy Start vitamins are available to women who are at least 10 weeks pregnant and families with children younger than 4 years who fit certain national and local criteria. Please check with local distribution sites to see if patient qualifies via NHS Choices (Healthy Start vitamin services) or www.healthystart.nhs.uk

References

1. National Institute for Health and Care Excellence. Vitamin D: increasing supplement use among at-risk groups. November 2014. Available from: www.nice.org.uk/
2. Meyer H, Holvik K, Lips P. Should vitamin D supplements be recommended to prevent chronic diseases? BMJ 2015;350:h321
3. Public Health England. PHE publishes new advice on vitamin D. 21 July 2016. [cited 16/09/16] https://www.gov.uk/government/news/phe-publishes-new-advice-on-vitamin-d
4. The Scientific Advisory Committee on Nutrition (SACN) recommendations on vitamin D (21 July 2016) https://www.gov.uk/government/publications/sacn-vitamin-d-and-health-report

Suggested licensed vitamin D preparations

Treatment of vitamin D deficiency (Rapid correction)				Contains[6]		Suitable for Vegetarian[6]
Product	**Age**	**Dose**	**Cost[8,9] per COURSE**	**Nut**	**Soya**	
Fultium-D3 20,000 unit capsules	12-18	1 capsule once every 2 weeks for 6 weeks	£3.40	N	N	N
	Over 18	2 capsules once every week for 7 weeks	£15.90			
InVita D3 25,000 units/1ml oral solution	0-18	1 drinkable ampoule once every 2 weeks for 6 weeks	£4.45	N	N	Y
	Over 18	2 drinkable ampoules once a week for 6-8 weeks	£17.80-£23.73			
Fultium-D3 3,200 unit capsules	Over 18 (licensed for use in pregnancy and breast-feeding)	1 capsule daily for 12 weeks	£37.30	N	N	N

Prevention of vitamin D deficiency (Maintenance therapy) Patients can purchase vitamin D from pharmacies as an alternative to the products listed				Contains[6]		Suitable for Vegetarian[6]
Product	**Age**	**Dose**	**Cost[8,9] per YEAR**	**Nut**	**Soya**	
Fultium-D3 20,000 unit capsules	12-18	1 capsule every 6 weeks	£9.87	N	N	N
	Over 18	1 capsule once a month	£13.63			
InVita D3 25,000 units/1ml oral solution	0-1	1 drinkable ampoule every 8 weeks	£9.66	N	N	Y
	1-18	1 drinkable ampoule every 6 weeks	£12.89			
	Over 18	1 drinkable ampoule once a month	£17.80			
InVita D3 2,400units/ml oral drops	0-1 years	400 units (6 drops) daily	£22	N	N	Y
	1-18 years	600 units (9 drops) daily	£33			
	Pregnancy & breast-feeding	400 units (6 drops) daily	£22			

• **Prevention & treatment of vitamin D + calcium deficiency in the elderly** • **Vitamin D + calcium supplement as an adjunct to specific osteoporosis treatment of patients who are at risk of vitamin D & calcium deficiency**			Contains		Suitable for Vegetarian
Product	**Dose**	**Cost[8,9] per YEAR**	**Nut**	**Soya**	
Accrete D3 tablets	One tablet twice a day	£35.89	Y	Y	N
Adcal-D3 750mg/200unit caplets	Two tablets twice a day	£38.45	N	N	Y
Calceos 500mg/400unit chewable tablets	One tablet twice a day	£43.56	Y	Y	N
Calfovit D3 oral powder sachets	1 sachet with water per day	£52.56	N	Y	N

If a patient's calcium intake is adequate (700 mg/day), consider vitamin D (without calcium) as per Public Health England recommendations (see page 1).[3,5,6]

If dietary calcium intake is less than 700 mg a day, advise on dietary measures to correct this. See the British Dietetic Association (BDA) factsheet on Calcium (available at www.bda.uk.com) for information on how the recommended daily calcium intake can be achieved[7].

References

5. National Institute for Health and Care Excellence. *CKS Osteoporosis (March 2016)* Available from: https://cks.nice.org.uk/osteoporosis-prevention-of-fragility-fractures
6. National Institute for Health and Care Excellence. *Vitamin D deficiency in adults - treatment and prevention (Nov 16)* Available from: https://cks.nice.org.uk/vitamin-d-deficiency-in-adults-treatment-and-prevention
7. National Osteoporosis guidelines group. Clinical guideline for the prevention and treatment of osteoporosis.March 2017 Available from: http://www.shef.ac.uk/NOGG/mainrecommendations.html
8. Drug Tariff May 17 (cited 02/05/17) http://www.drugtariff.nhsbsa.nhs.uk/
9. Dictionary of Medicines and Devices Browser (cited 02/05/2017) http://dmd.medicines.org.uk/DesktopDefault.aspx