Vitamin D
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What is Vitamin D?
‘An essential nutrient needed to regulate the amount of calcium in the skeleton and responsible for maintaining good bone health.’

Actions of Vitamin D...
- Intestinal calcium & phosphate absorption - small intestine
- Stimulates renal calcium reabsorption
- Stimulation of bone formation
- Immunomodulation - involved in innate immunity
- Maintenance of cellular proliferation & differentiation

Health professionals should recommend a daily supplement containing:
- 10 μg (400 IU) vitamin D for all pregnant and breastfeeding women
- 7.5 μg (300 IU) vitamin D for infants & toddlers (6 months to 5 years)
- For breast fed babies whose mother did not take vitamin D during pregnancy
- 7.5 μg from 1 month
- Babies taking less than 500ml infant formula advise 7.5 μg vitamin D (around 11/hyphen.cap12 months)

Health Education East of England

Sources of Vitamin D

- Primary prevention recommended for at risk groups; this should include advice re dietary sources of Vitamin D, safe sunlight exposure and Vitamin D supplements
- Dept of Health recommends a daily multivitamin supplement for all children age 6 months - 5 years
- Breast fed infants from age 1 month if mother known to have Vitamin D deficiency
- Healthy Start supplements available free to Birmingham children up to age 4 years

Vitamin D in the media

Daily Mail
‘Rickets soar as children stay indoors:
Number diagnosed with disease quadruples in last ten years. New figures from the NHS show there were 833 hospital admissions. Ten years earlier the figure was just 190. The disease, which causes brittle bones and deformities, was common in 19th century Britain’ (January, 2014)

Parents jailed over rickets baby death
Evidence the hospital played a part in failing properly to advise the couple and prescribe vitamin D supplements and a serious case review had been taking place without vitamin D being given to his mother who, as a vegan, would have been more susceptible to a vitamin deficiency.

Any child can develop rickets, but children with dark skin (as more sunlight is needed to get enough vitamin D) or children born prematurely are more susceptible

Conclusion

- Vitamin D deficiency rickets is the commonest form of bone disease in children worldwide
- Mixture of causative factors but lack of sunlight exposure most important
- Dietary calcium deficiency is often also present
- High prevalence of biochemical Vitamin D deficiency with no symptoms
- Vitamin D supplementation is critical in the prevention of rickets
- It is impractical to offer a one-size-/f.shortits-all recommendation for the amount of sun exposure that people need to make sufficient vitamin D, because this varies according to a number of environmental, physical and personal factors.

Educating Parents about Vitamin D

Despite its importance for childhood development, parents are not fully informed when it comes to their child’s need for this important vitamin. In fact:
- More than three quarters of parents (77%) are unaware of their child’s daily dietary requirement of vitamin D with 35% stating they have never received information about their child’s specific needs.
- Populations most at risk of deficiency African-Caribbean and South Asian origin
- Infants and toddlers whose mothers cover up for religious or cultural reasons thereby limiting cutaneous vitamin D synthesis
- Babies and Toddlers whose mothers did not take vitamin D supplements during pregnancy and/or while breastfeeding
- Lead mainly indoor lifestyles Families living in the northern parts of the UK
- Toddlers who do not have the opportunity to play outside regularly without sunscreen.

Interesting facts
Vitamin D is sometimes called “the sunshine vitamin.”
- 10-15 mins of sun exposure without sunscreen during the summer months are enough for most people.
- Other common food sources include yogurt and cheese made with vitamin D-fortified milk.
- A food has a lot of vitamin D if it has at least 1.5 times Daily Value (DV) for vitamin D per serving.
- People who are lactose intolerant, and avoid dairy products, may not get enough vitamin D from their diets.
- Breastfed infants who are completely breastfed require a daily vitamin D supplement of 400 IU from birth - 1 yr of age.
- Vitamin D is needed for normal absorption of calcium and phosphorus.

Vitamin D Levels in Toddlers

Vitamin D is a fat soluble vitamin that is essential for normal calcium homeostasis and bone health. It is also involved in a variety of other processes such as immune function, muscle function, and cellular differentiation. Vitamin D deficiency can lead to bone diseases such as rickets in children and osteoporosis in adults.

Foods that are good sources of vitamin D include fatty fish (such as salmon, mackerel, and tuna), fortified milk and milk products, and eggs. Some foods, such as vitamin D-fortified cereals and yogurts, are also fortified with vitamin D. However, sunlight is the most important source of vitamin D for most people, especially during the winter months when daylight is limited.

Vitamin D deficiency can be caused by a number of factors, including inadequate sun exposure, poor dietary intake, and impaired absorption or utilization of the vitamin. Individuals with darker skin pigmentation may require more sun exposure to make vitamin D, as their skin contains less of the enzyme necessary to convert 7-dehydrocholesterol to vitamin D.

In conclusion, vitamin D is an important nutrient that plays a key role in maintaining healthy bones and immune function. It is important to ensure adequate intake of vitamin D through food or supplements, especially during the winter months when sunlight exposure is limited.