

Vitamin D in Children with Epilepsy and Neurodisability

This leaflet offers more information about vitamin D. If you have any further questions or concerns, please speak to the staff member in charge of your child's care.

The National Diet and Nutrition Survey showed that 1 in 4 people in the UK has low levels of vitamin D in their blood. Vitamin D is often called the 'sunshine vitamin' because our bodies make it when our skin is exposed to sunlight. However, due to the latitude of the UK and our unreliable weather, we can only produce vitamin D during the period with more sunshine, i.e. from April to October.

What is the role of vitamin D?

Vitamin D is an essential nutrient needed for healthy bones and teeth, maintaining normal muscle and immune system function. There is also recent evidence to show that it may prevent many other diseases.

Natural sources of vitamin D

Only a few foods contain vitamin D, including oily fish, eggs and fortified foods such as cereals, margarine, formula milk and yoghurts. This makes it difficult for children to get sufficient amounts of vitamin D from their diet.

The time required to make vitamin D in the sun is short and much less than the amount needed for skin to redden and burn. Wearing sunscreen is important to prevent skin cancer, but it can block UVB needed to make vitamin D, so a few minutes of sun exposure on a sunny day, before applying sunscreen is recommended as a consensus by many health organisations (BAD, Cancer Research UK, Diabetes UK, MS Society, National Health Forum, National Osteoporosis Society, Primary Care Dermatology Society).

Those at risk of vitamin D deficiency include:

- Pregnant and breastfeeding women, teenagers and young women.
- Infants and young children under the age of five, especially those with prolonged breastfeeding
- People who have low or no sun exposure – those who are unable to walk (e.g. those with cerebral palsy and other neurodisability conditions), those who stay indoors, with covered skin, live in high latitude like the UK etc.
- People who have darker skin as their bodies cannot make as much vitamin D

- People who have epilepsy and take antiepileptic drugs, especially the older antiepileptic drugs (Phenytoin, Phenobarbitone, Carbamazepine, Valproate) or enzyme inducers (e.g. Topiramate) (MHRA 2009)
- Those who have malabsorption, poor nutritional status, obesity, liver or renal diseases
- People on exclusion diets, e.g. milk allergies. Calcium is needed for vitamin D absorption
- Older people aged 65 and over.

Vitamin D deficiency can cause a range of signs and symptoms in children, including:

- Seizures, tetany (spasms of the hands and feet, cramps, spasm of the larynx) and cardiomyopathy *in infants*
- Aches and pains, myopathy causing delayed walking, rickets with bowed knees, knock knees, poor growth and muscle weakness *in children*.
- Aches and pains, muscle weakness, bone changes or rickets or osteomalacia *in adolescents*.

Vitamin D deficiency prevention

According to the British Paediatric and Adolescent Bone Group, levels of vitamin D in the blood should be above 50nmol/L. An insufficiency is when the amount of vitamin D in the blood is between 25nmol/L and 50nmol/L, whilst a deficiency is when the amount is less than 25nmol/L.

A standard blood test measuring 25-hydroxy vitamin D is an excellent marker of body stores.

All pregnant and breastfeeding women should take a daily supplement containing 10mcg (400 units) of vitamin D so that the mother's requirements are met and foetal stores are built up.

All infants and young children from six months to five years should be taking approximately 300 units of vitamin D daily. Oral sprays and vitamin drops are formulated for babies and young children, whilst chewable vitamins are suitable for older children. Children's supplements can be bought in supermarkets and chemists. Parents who qualify for 'Healthy Start' are entitled to free vitamin supplementation (RCPCH Guide for Vitamin D in childhood 2013).

Category	Dose and frequency	Examples of preparations
Newborn up to one month	300-400 units daily	Abidec, Dalivit, Baby D drops and 'Healthy Start' Vitamins
One month to 18 years	400-1,000 units daily	Over-the-counter preparations, e.g. Abidec, Dalivit, Boots high strength vitamin D, D drops, Holland & Barrett Sunvite D3, D Lux oral spray, Sunvit-D3, Vitabiotics tablets etc.

Exclusively breastfed infants should receive vitamin D soon after birth. Infants on infant formula will not need supplements until they are getting less than 500ml a day because formulas have vitamin D added.

All adults with **epilepsy** on enzyme inducing drugs should have calcium and vitamin D measured every two to five years as part of their regular checks (NICE CG137 2012). Not enough evidence exists around whether the newer antiepileptic drugs carry fewer bone health risks, so it is good practice to ensure that everyone has adequate vitamin D levels (NOS Vitamin D Guideline 2013).

Useful links

<https://www.gov.uk/government/publications/vitamin-d-advice-on-supplements-for-at-risk-groups>

<https://www.rcpch.ac.uk/resources/vitamin-d-position-statement>

<https://nos.org.uk/about-osteoporosis/your-bone-strength/>

<https://www.healthystart.nhs.uk/>

Contact us

If you have any questions please contact the paediatric epilepsy / neurodisability team at the Child Development Centre on 020 8725 1896 (Monday to Friday, 9.00am to 5.00pm).

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.stgeorges.nhs.uk

Additional services

Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

Tel: 020 8725 2453 **Email:** pals@stgeorges.nhs.uk

NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health.

Web: www.nhs.uk

NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones.

Tel: 111

AccessAble

You can download accessibility guides for all of our services by searching 'St George's Hospital' on the AccessAble website (www.accessable.co.uk). The guides are designed to ensure everyone – including those with accessibility needs – can access our hospital and community sites with confidence.



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