

Paediatric Pearls

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Edition on supplements and vitamins
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Monthly paediatric update newsletter for all health professionals working with children – put together by Dr Julia Thomson, Paediatric Consultant at Homerton University Hospital, London, UK. Housed at www.paediatricpearls.co.uk where comments and requests are welcome!

NHS Guidance on Vitamins for children

- Babies from **birth** to 1 year of age who are being breastfed should be given a daily supplement containing 8.5 to 10 micrograms of vitamin D to make sure they get enough. This is whether or not you're taking a supplement containing vitamin D yourself.
- Babies fed infant formula should not be given a vitamin D supplement if they're having more than 500ml (about a pint) of infant formula a day, because infant formula is fortified with vitamin D and other nutrients.
- Children aged 1 to 4 years old should be given a daily supplement containing 10 micrograms of vitamin D.

- 8% of < 5s in the UK have insufficient vitamin A in their diet
- families in lower-income groups have less vitamin C in their diet
- all pregnant women, women with a child under 12 months and children up to age 4 are eligible for free Healthy Start [vitamins in Hackney](#) and some other local boroughs. Elsewhere, families may need to be eligible for the [NHS Healthy Start Scheme](#) (financial support for food & milk as well as vitamins).

Supplements for children following a vegan or vegetarian diet
Veganism is becoming more common

A [BBC Good Food survey](#) in 2021 in the UK found that 13% of children aged 5-16 are following a vegetarian diet and 8% are vegan. Whilst these dietary alternatives might have [some health benefits](#) (eg. reduced risk for type II diabetes, hypertension and obesity), they can pose a [risk of malnutrition](#). Some nutrients, though available through plant alternatives, are sometimes more easily absorbed from animal sources. If parents decide to give their child a vegan diet, they should do so with [expert guidance](#).

Supplementing vitamins A, B₂, B₁₂ and **D** as well as iron, zinc, [calcium](#) and selenium is [advised](#). Providing a sufficient intake of energy, protein and essential fatty acids is also important.



Click on the links within the text above for recent studies on this topic. Useful resources for parents considering feeding their children vegetarian or vegan diets: <https://www.nutrition.org.uk/putting-it-into-practice/plant-based-diets/healthy-eating-for-vegetarians-and-vegans/> and [First Steps Nutrition's guide](#) to feeding vegan under-5s.

Nitrous oxide use can cause vitamin B12 deficiency, anaemia and myeloneuropathy. Ask young people with painful, numb or tingling fingers and toes if they use these whippits/nos/noz/balloons.

Did you know?

<https://www.talkofrank.com/drug/nitrous-oxide>

Vitamin D



Vitamin B2 (Riboflavin)



What do all those B vitamins do? Zinc? Selenium? What food is high in vitamin D?

Answers at:

<https://www.nutrition.org.uk/media/5xeeolog/vitamin-s-and-minerals-in-our-food-pdf.pdf>

Multiple studies have shown that a daily dose of 400mg **riboflavin** (also known as vitamin B2) is capable of significantly reducing frequency and intensity of **acute migraines**, whilst also reducing the number of tablets needed for migraine cessation.^{1,2,3,4}



One in ten children in the UK suffer from recurrent headaches, that occur with or without aura and can last for 1 to 72 hours – also known as migraines. Characteristically, this is a unilateral or bilateral, pulsating pain with gradual onset, that worsens with routine physical activity and is often associated with nausea, vomiting, photophobia and phonophobia.

First line treatment of an acute episode in children includes triptan (oral or nasal sumatriptan or zolmitriptan) and a NSAID, combined with an antiemetic.

Prophylaxis options include pizotifen, propranolol, topiramate, acupuncture and supplements including magnesium, riboflavin and co-enzyme Q10.

Further migraine CPD: <https://cks.nice.org.uk/topics/migraine/management/young-people-aged-12-17-years/> and <https://bestpractice.bmj.com/topics/en-gb/678>.

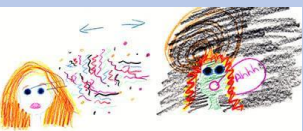
1.3.23 Advise people with migraine that riboflavin (400 mg once a day) may be effective in reducing migraine frequency and intensity for some people. [2012]

<https://www.nice.org.uk/guidance/cg150/chapter/recommendations>

Parent information: <https://www.nhs.uk/Livewell/headaches/Documents/Factsheet-Migraine-in-Children-and-Adolescents-12.1.12.pdf>

What actually is riboflavin? <https://www.ncbi.nlm.nih.gov/books/NBK525977/>

1. Boehnke et al. *Eur J Neurol*. 2004 <https://pubmed.ncbi.nlm.nih.gov/15257686/>
2. John A, Shinwari W88 [Vitamin B2 \(Riboflavin\) as prophylaxis for migraines in children](#): a retrospective review *BMJ Paediatrics Open* 2021;5:doi: 10.1136/bmjpo-2021-RCPC4.51
3. Talebian et al. *Electron Physician* 2018 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5878019/>
4. Gaul et al. *J Headache Pain* 2015 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4393401/> (magnesium too?)



Children may be better able to draw their headache than describe it to you. Pictures from: <https://www.hopkinsmedicine.org/news/articles/a-n-artful-diagnosis-of-headache-in-young-children>

A 2 year old child is seen in the outpatients department with a history of breath holding spells for the past three months, occurring about 3–4 times per week. These are causing her mother a great deal of concern. You consider whether or not a course of iron would reduce the frequency of these attacks.

Structured clinical question

In a 2 year old child with breath holding spells [patient], will a treatment with iron [intervention] reduce the frequency of episodes [outcome]?

Does iron have a place in the management of breath holding spells? [Boon R. ADC, 2002](#)

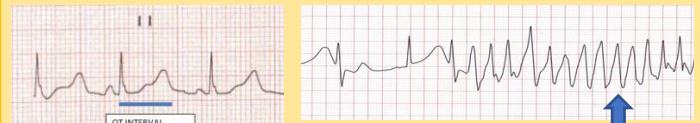


The Syncope Trust And Reflex anoxic Seizures support group describe [RAS](#) as a type of fit that is brought on by a disproportionate vagal stimulation and is separate from an epileptic seizure or cyanotic breath-holding.

Reflex anoxic seizures are paroxysmal, spontaneously-reversing brief episodes of asystole triggered by pain, fear or anxiety. The episodes are self-limiting, can last for up to 1 minute and mostly occur in infants and young pre-school children but can persist into adulthood.

During the vagal phase children will be floppy, become pale and lose consciousness, which subsequently transitions into a tonic phase. This can show stiffening, brief myoclonic or clonic jerking of extremities, clenching of the jaw and rolling up of the eyeballs. It can take time to fully recover from an episode and the child might fall asleep afterwards.

In the presence of a clear history and normal examination, an ECG (but not EEG) is recommended to exclude any rare cardiac arrhythmias, prolonged QT in particular.



To measure QTc: <https://www.mdcalc.com/corrected-qt-interval-qt-c>.

This is what the heart is doing when a child with prolonged QT collapses.

Treatment for RAS is usually not necessary, but studies have now shown that children – especially those with iron deficiency – benefit from iron supplementation (at 5 mg/kg/day of elemental iron for 16 weeks). [Iron supplementation is effective in the management of breath holding spells](#) whether or not the child has been shown to be iron deficient. Over 70% of children in this linked 2017 study got better with iron supplementation. Most would have got better anyway. It is a benign, self-limiting problem in most cases but worth discussing iron therapy with parents who may not view RAS as quite so inconsequential.

Parent information: <https://www.heartrhythmalliance.org/stars/uk/reflex-anoxic-seizures-ras>