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Murder trial highlights return of Dickensian killer

05 January 2012 by [Andy Coghlan](#)
Magazine issue [2846](#). [Subscribe and save](#)

Lack of vitamin D is being linked to rickets, MS and asthma, so it's time to confront the Victorian villain once again

Editorial: ["Down with this Dickensian disease"](#)

LAST month, Rohan Wray and Chana Al-Alas walked free from the Old Bailey court in London after being [cleared of killing their 4-month-old son](#) Jayden in 2009. The injuries to his skull, knee, elbow, shoulder, hip, ankle and wrist - and haemorrhages in his skull and eyes - had seemed to suggest that the pair was responsible for their baby's death.

Post-mortems revealed a different story.

Jayden had rickets, a Dickensian disease caused by a shortage of vitamin D, making his bones abnormally weak and vulnerable to damage.

Further investigations showed that Jayden's mother was also suffering from a lack of vitamin D. She had been unable to supply Jayden with enough of the vitamin, either before his birth or afterwards in her breast milk.

The case has highlighted a resurgence in rich countries of the potentially fatal diseases that result from a lack of vitamin D (see ["Rickets is just the start"](#)). [Irene Scheimberg](#), the clinical pathologist at the Royal London Hospital who discovered Jayden's rickets, says there is evidence to suggest vitamin



Vitamin D production is light work (*Image: S Tasker/Getty Images*)

D deficiency was to blame for the deaths of two other babies she had examined, and may have contributed to the deaths of the 27 infants she has autopsied in the last few years, including deaths attributed to asthma, viruses and sudden infant death syndrome.

In the UK, cases of childhood rickets have leapt from 147 in 1997 to 762 in 2010. The story may be similar in the US: a study published by the US Centers for Disease Control (CDC) in Atlanta, Georgia, found that only 5 to 13 per cent of breastfed infants and 20 to 37 per cent of formula-fed babies got enough vitamin D to meet the recommended daily dose of 400 international units (IUs) - or 10 micrograms (*Pediatrics*, DOI: [10.1542/peds.2009-2571](https://doi.org/10.1542/peds.2009-2571)). The [American Academy of Pediatrics](#) came up with this figure in 2009 and it was endorsed in 2010 by the [US Institute of Medicine](#).

There is no national surveillance of rickets in the US. "However, hospitalised cases of rickets among infants, indicating severe vitamin D deficiency, do continue to be reported," says Cria Perrine, lead author of the CDC study.

So why the deficiencies? The body makes its own vitamin D in skin, but only if the skin is exposed to sunlight - something which tends to be discouraged because it raises the risk of skin cancer. Rickets flourished during Britain's industrial revolution, when smog blocked sunlight and children were forced to work all day in factories.

Up to a quarter of the body's vitamin D needs are provided by our diet. It is abundant in oily fish and eggs, but modern diets may not include enough of these foods to provide sufficient vitamin D. Supplements can boost levels of the vitamin, but the few studies available in the US suggest physicians seldom recommend vitamin D supplements for infants, says Perrine.

Gillian Killiner of the British Dietetic Association says the importance of vitamin D has been overlooked in the past decade because of the disproportionate focus on folic acid supplements, which can help prevent spinal defects in infants if given to pregnant women.

There is even uncertainty over the appropriate dose of vitamin D to give to pregnant or breastfeeding women. A recent study of 350 women who were between 12 and 16 weeks into pregnancy explored whether daily doses of 400, 2000 or 4000 IUs of vitamin D should be given. The women were tracked through to delivery. The results suggest that the highest dose was required to sustain normal metabolism in the women, and no adverse effects were found (*Journal of Bone and Mineral Research*, DOI: [10.1002/jbmr.463](https://doi.org/10.1002/jbmr.463)).

London-based coroner Andrew Walker recently concluded that vitamin D deficiency had claimed another infant by causing heart-valve failure and impairing immunity to an infection. On 6 December, he wrote to the UK's health minister urging him to ensure that supplemental vitamin D is offered to all woman who are pregnant or breastfeeding.

In response, the Department of Health has promised to [review the evidence on vitamin D requirements](#), and repeated a pledge from 1991 to provide vitamin D to pregnant women.

Boosting awareness is important: disease from vitamin D deficiency is preventable.

Rickets is Just the Start

Low levels of vitamin D through pregnancy and early childhood might increase the risk of food allergies, asthma and even multiple sclerosis.

[George Ebers](#) at the University of Oxford, and colleagues, discovered that MS is more common in those born in the northern hemisphere in May - following winter - than those born in November. The [incidence of MS also increases further from the equator](#). Both results hint that lack of exposure to UVB light and subsequent low levels of vitamin D could be linked to a higher risk of the disease.

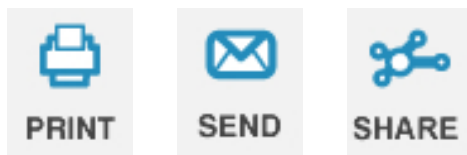
Ebers has called on the Scottish government to fortify essential foods with vitamin D. "Scotland has two new cases of MS a day and a lifetime cost per case of £1.2 million a year," he says. "It also has the lowest vitamin D levels in the world."

Lack of vitamin D has also been linked to food allergies. [Carlos Camargo](#) at Harvard University says that vitamin D deficiency in critical periods of development may increase intestine permeability, meaning the immune system interacts with genes at over 2776 sites on the human genome, including those linked to asthma and diabetes. "It's got to be an awful lot more important than people give it credit for," says Ebers.

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