

## CORRESPONDENCE



# Comment on: 'Patients with unexplained neurological symptoms and signs should be screened for vitamin B12 deficiency regardless of haemoglobin levels'

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### TO THE EDITOR:

We read with interest the recently published Eye correspondence that patients with unexplained neurological symptoms should be screened for vitamin B12 deficiency, regardless of haemoglobin levels [1].

Vitamins are essential for normal metabolic function and deficiencies can cause a range of ophthalmic and neuro-

ophthalmic pathology. Identifying a vitamin deficiency should always prompt investigation to exclude concurrent deficiencies. The current socioeconomic challenge and food insecurity may result in a rise in reversible, nutritional visual loss and disease.

Recognising the key ophthalmic features of vitamin deficiencies is a requirement of the Royal College of Ophthalmologists' Ophthalmic Specialist Training [2]. Table 1 addresses this knowledge. We hope that it will act as a useful aide memoir in the coming months, when the socioeconomic challenge may increasingly affect our patients' food choices and visual health.

**Table 1.** Vitamin deficiencies with ophthalmic and neurological manifestations.

Vitamin <sup>a</sup>	Key clinical features	Treatment	Top 3 dietary sources [3]
A: retinol	Nyctanopia Xerophthalmia Keratomalacia Bitot's spots Conjunctival squamous metaplasia	Oral vitamin A If inefficient consider intramuscular or intravenous	Goji berries Beef liver Sweet potato
B1: thiamine	Wernicke triad: Altered mental state Ophthalmoplegia Ataxia	Intravenous (in severe deficiency) followed by oral thiamine	Wheatgerm Flaxseed Sunflower seeds
B9: folate	Optic neuropathy Homocysteine retinopathy [4]	Oral folic acid	Lamb liver Wheatgerm Edamame beans
B12: cobalamin	Gait abnormalities Cognitive impairment	Intramuscular hydroxycobalamin	Shellfish Liver Mackerel
C: ascorbic acid	Keratoconjunctivitis sicca Sunconjunctival, iris, retinal and orbital haemorrhage	Oral vitamin C	Guavas Bell peppers Kale
D: calciferol	Implicated in Multiple Sclerosis and Graves disease	Oral vitamin D3	Mushrooms Salmon Egg yolks
E: alpha tocopherol	Peripheral neuropathy Spinocerebellar ataxia Skeletal myopathy Pigmented retinopathy	Oral alpha tocopherol	Sunflower seeds Almonds Hazelnuts

<sup>a</sup>Deficiencies in these vitamins have also been implicated in cataracts and age-related macular degeneration.

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## AUTHOR CONTRIBUTIONS

PM conceived the idea and edited the paper. MA contributed to writing the paper. HB wrote and edited the final paper.

## COMPETING INTERESTS

The authors declare no competing interests.

## ADDITIONAL INFORMATION

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