

Why is B12 deficiency an epidemic?

- Lack of knowledge amongst clinicians.
- Poor or absent screening in symptomatic and at-risk patients.
- Reference range for 'normal' serum B12 far too low.
- Lack of use of other sensitive tests to aid in diagnosis (Homocysteine, MMA).
- Clinicians wait for enlarged red blood cells (macrocytic anaemia) to be present.
- Elderly are frequently misdiagnosed due to increased incidence of pre-existing diseases and comorbid conditions.
- B12 screening not included in older adults who fall, or have, cognitive changes or dementia.

Disorders with possible underlying B12 deficiency:

- Dementia - Alzheimer's disease
- Multiple sclerosis
- Depression (post-natal/psychosis)
- Bipolar disorder
- Neuropathy (diabetic, CIDP)
- Vertigo
- Anaemia
- Congestive heart failure
- Autism, ADHD
- Cerebral palsy
- Seizures
- AIDS dementia complex
- Restless leg syndrome
- Radiculopathy, chronic pain disorder
- Chronic fatigue syndrome, fibromyalgia
- Chronic renal failure (hemodialysis patients)
- Essential tremor - Parkinson's like symptoms
- Erectile dysfunction
- Infertility

Reproduced with permission by Sally Pacholok R.N
Co Author of *Could it Be B12? An Epidemic of Misdiagnosis.*

Copyright ©

www.b12info.com

Please DO NOT supplement with B12 before being tested for B12 deficiency

This could skew results and make diagnosis difficult.

For more information: www.b12info.com

Diagnosing and Treating Vitamin B12 Deficiency

A documentary on B12 deficiency with Sally Pacholok R.N. and Dr. Jeffrey Stuart. <https://youtu.be/BvEizypoyO0>

'Sally Pacholok' an E.R nurse who took on the medical establishment. https://youtu.be/kuiu5_T4zB4

1. Pacholok SM, Stuart JJ. **Could It Be B12? An Epidemic of Misdiagnoses, 2nd Ed.**

*Quill Driver Books-Linden Publishing, 2011, 324pp. (1st Ed., 2005, 220pp.) and **Could It Be B12? Paediatric Edition: What Every Parent Needs to Know.** (2015)*

2. Allen, LH. **How common is vitamin B12 deficiency?**

Am J Clin Nutr. 2009 Feb;89(2):693S-6S.

3. Dharmarajan, T.S., Norkus, E.P. **Approaches to vitamin B12 deficiency: Early treatment may prevent devastating complications.** *Post-graduate Medicine* 2001;110(1): 99-105.

4. Stabler, et al. **Vitamin B12 deficiency as a worldwide problem.** *Annu Rev. Nutr* 2004;24:299-326.

5. Vogiatzoglou, A. et al. **Vitamin B12 status and rate of brain volume loss in community-dwelling elderly.** *Neurology* 2008;71:826-832.

6. Graham SM, et al. **Long-term neurologic consequences of nutritional vitamin B12 deficiency in infants.** *J Pediatr* 1992 Nov;121:710-4.

7. Muhammad, R., Fernhoff, P. et al. **Neurologic impairment in children associated with maternal dietary deficiency cobalamin-Georgia, 2001** *MMWR Weekly*, 2003;52(04);61-4.

Copyright ©

www.b12info.com



Your Guide to Vitamin B12 Deficiency

What is vitamin B12?

Vitamin B12 (cobalamin) is one of the 13 vitamins our body needs for health and life. It is essential for the production of red blood cells and aids in the maintenance of a healthy nervous system.

B12 deficiency damages the brain, spinal cord, peripheral nerves, and nerves of the eye. It is a crucial element in the construction of DNA.

B12 deficiency can result in symptoms ranging from severe anaemia requiring blood transfusions, to serious and permanent nerve damage.

B12 is found naturally in animal foods (meat, poultry, fish, shellfish, dairy, and eggs).

B12 must follow a complex pathway of several steps for proper absorption. A block in any part of this pathway can cause malabsorption and subsequent deficiency.

www.b12info.com

Tracey Witty

Common Misdiagnoses

- Dementia/Alzheimer's
- Multiple sclerosis
- Depression
- Post-Natal depression
- Psychosis
- Bipolar disorder / Schizophrenia
- Neuropathy (diabetic, CIDP)
- Vertigo
- Anaemia
- Congestive heart failure
- Autism
- ADHD
- Radiculopathy, chronic pain disorder
- CFS - Chronic Fatigue Syndrome
- ME - Myalgic Encephalomyelitis
- Fibromyalgia
- Parkinson's disease
- FND (Functional neurological disorder)

Who to test and who is at risk?

- Neurological or motor symptoms
- Mental status changes
- Dementia or Alzheimer's disease
- Psychiatric disorders, including depression
- Gastrointestinal disorders & surgeries
- Gastric bypass
- Anaemia
- Elevated MCV
- Age 50 and over
- Vegans, vegetarians, macrobiotic diets
- Autoimmune & thyroid disorders
- Diabetics
- Cancer patients / Hepatitis C patients
- Children and breast fed infants of at-risk mothers
- Developmental delay in infants & young children
- Autism spectrum
- Eating disorders
- Family history of pernicious anemia
- Proton pump inhibitor, metformin/Glucophage use
- Occlusive vascular disorders (MI, CVA, DVT, PE)

What are the causes?

- Decreased stomach acid
- Atrophic gastritis
- Autoimmune pernicious anemia
- Helicobacter pylori
- Gastrectomy, intestinal resection
- Gastric bypass surgery
- Malabsorption syndromes
- Crohn's disease
- Coeliac disease (gluten enteropathy)
- Chronic pancreatitis
- Bacterial overgrowth (small bowel)
- Fish tapeworm
- Alcoholism
- Malnutrition - Eating disorders
- Vegetarianism
- Advanced liver disease
- Transcobalamin II deficiency
- Inborn errors of B12 metabolism
- Certain drugs (e.g. acid suppressants, metformin)
- Nitrous oxide

Neurological signs and symptoms

- Numbness - tingling
- Weakness of legs, arms, trunk
- Impaired vibration - position sense
- Abnormal reflexes
- Unsteady or abnormal gait
- Balance problems
- Difficulty walking
- Dizziness
- Tremor
- Restless legs
- Visual disturbances
- Forgetfulness, memory loss
- Dementia
- Impotence
- Bladder or bowel incontinence

Psychiatric symptoms

- Depression/suicidal thoughts
- Irritability
- Paranoia
- Mania
- Hallucinations
- Psychosis
- Violent behavior
- Personality changes

Hematological signs and symptoms

- Anaemia
- Macrocytosis - large red blood cells (need not be present)
- Hypersegmented neutrophils
- Generalised weakness, fatigue
- Shortness of breath
- Pallor

Signs & symptoms in infants and children

- Developmental delay or regression
- Apathy - Irritability
- Hypotonia
- Weakness
- Tremor
- Involuntary movements
- Seizures
- Ataxia
- Anorexia
- Failure to thrive
- Poor weight gain
- Poor head growth
- Poor socialisation
- Poor motor skills
- Language delay
- Speech problems
- Lower IQ - Intellectual disability
- Anaemia
- Macrocytosis - large red blood cells