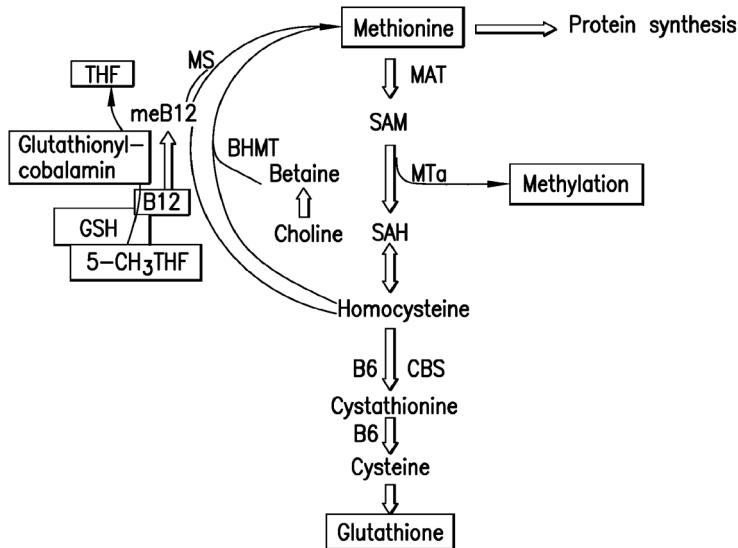


Methyl B12 Injections

What is methyl-B12?

Vitamin B12 occurs in five different forms, each of which have their own unique metabolic role. Methyl-B12 is unique as it has the ability to activate the methionine / homocysteine pathway. Methyl-B12 together with folate play a central role in a pathway called methylation.



Methylation is responsible for:

- RNA and DNA (genetic material responsible for every function in the body)
- Immune system regulation
- Detoxification of heavy metals and other harmful substances
- Making glutathione (the body's main detoxification enzyme)
- Production and function of proteins
- Regulating inflammation

Studies have shown that 90% of ASD children have impaired methylation and 80% decreased levels of glutathione in their cells. Supporting and/or repairing the underlying impairment and deficiency translates into **increased social, cognitive and language development**.

This means that children with autism cannot effectively fuel the brain and detoxify harmful substances from their system. The brain is the only part of the body that depends entirely on B12 to detoxify. As the brain is over-burdened with toxic substances, the "wheels" of methylation slow, severely impacting brain development. B12 works closely with folic acid. A folic acid molecule must interact with the enzyme **MTHFR** (methylentetrahydrofolic acid) to become 5-methyltetrahydrofolic acid (5-MTHF). 5-MTHF gives the methyl group to B12 so it can become methyl-B12. Unfortunately, many children have a defect in this enzyme.

Dr Neubrander pioneered methyl-B12 injections in 2002 for ASD individuals. In his practice he found that 94% of children that he treated responded favourably with methyl-B12 injections.

How does it work?

- The prevailing theory on why vitamin B12 may be effective in many neuromuscular and other conditions is that the METHYL (methylcobalamin) group acts to aid in detoxification and to improve cellular energy.
- Additionally, high-dose administration of vitamin B12 has been validated to stimulate the activity of the body's immune TH1 suppressor Th1-cells, which has been implicated as a problem in ASD individuals

What are the benefits of methyl-B12 injections?

Promotion of speech and language:

- ✓ Spontaneous language
- ✓ More complex sentences
- ✓ Increased vocabulary

Improvements in socialization, understanding and expressing emotion:

- ✓ Initiation and interactive play
- ✓ Understanding and feeling emotions
- ✓ Affection and tolerance to touch

Enhancement in executive function:

- ✓ Awareness
- ✓ Cognition
- ✓ Appropriateness
- ✓ Eye contact
- ✓ Responsiveness
- ✓ Normalised behaviours and interaction

Undesired effects to methyl-B12 therapy are a good sign of treatment success. They are not uncommon and include:

- ✓ Hyperactivity
- ✓ Self stimulating behaviour
- ✓ Increased mouthing of objects
- ✓ Sleep disturbances – which can be managed with other treatments
- ✓ Aggression, hitting and biting - caused by frustration due to increased awareness

Side effects can be mild to severe and are considered transient which means they will pass as treatment progresses.

What other forms of methyl-B12 are there?

Methyl-B12 is also available in capsules, sublingual tablets (and "lollypops", Revitapops), as a nasal spray and transdermal (via the skin). However the best results seem to be obtained when methyl-B12 is injected just under the skin in the buttocks.

Why methyl-B12 injections rather than sublingual or intranasal administration?

Injection has been shown to be, by far, the most effective route of administration. It is through injection that the most dramatic effects are seen. Methyl-B12 injection into the fat of the buttocks, allows methyl-B12 to be slowly released and stays in the system continually at an optimal level. Transdermal, intranasal or sublingual forms of administration, cause the methyl-B12 levels to fluctuate in the body. All vitamin B12 forms are absorbed in the last portion of the small intestine, the terminal ileum. Dr. Wakefield and Dr. Krigsman and Dr. Buie have shown through their research that an extremely high percentage of children on the autistic spectrum have an inflammatory bowel condition that affects this region of the intestinal tract. This makes injection a better choice than depending on the digestive tract for absorption.

Dosage frequency and administration of the methyl-B12 injections

The methyl-B12 injections come as single use pre-filled syringes. The dose of methyl-B12 is determined by the patients weight. Patients are usually started with a twice-a-week dosage. However, it is more common for parents to give the methyl-B12 injections every three days. The injections are usually given shortly after the child has fallen asleep, in the upper outer quadrant of the buttocks, so that there isn't disruption from the injection itself, which is quite benign and painless.

Should you wish to do a trial of methyl-B12 injections for your child, I can organise a script through a reputable compounding pharmacy. For more details, please contact me directly.