PERQUE

PERQUE B12 Guard and **PERQUE Vessel Health Guard** are 100% bioavailable.

PERQUE pioneered hydroxocobalamin use *because* hydroxocobalamin converts to methylcobalamin – seamlessly, locally as needed and used up within seconds. Local needs safely determine the speed of methylcobalamin synthesis. Hydroxocobalamin is also easily converted to adenosylcobalamin, a form of B12 preferred by mitochondria while methylB12 is not cross converted.

Methylcobalamin is *uniquely* able to convert metallic mercury to methylmercury, a more toxic form. **PERQUE** *avoids* this adverse event by using hydroxocobalamin, nature's preferred B12 form that does not have the adverse effect.

A recent 12 week study conducted by the M.I.N.D Institute[1] on the effect of methylcobalamin in 30 autistic children showed that methylcobalamin is statistically *ineffective* in treating behavioral symptoms of autism. A subset of nine subjects, however, showed positive behavioral changes confirming that methylation may be important in a subgroup of those with autistic spectrum disorders (ASD).

Hydroxocobalamin has a half-life of days and is converted locally to methylcobalamin as needed. Methylcobalamin has a very short half-life, measurable in minutes to hours. Peer reviewed literature (see below) confirms that the sublingual mucosa takes up 100% of water-soluble small molecules such as folate, B6 and **hydroxocobalamin**. **PERQUE B12 Guard** and **PERQUE Vessel Health Guard** are clinically *equivalent* to a comparable injection. Peer reviewed reports confirm full mucosal uptake. **PERQUE's** research is also confirmed by abundant spontaneous reports from **PERQUE** clients and clinicians.

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References and Resources

1. Bertoglio K, James S, Daprey L, Norman B, Hendren R. Pilot Study of the Effect of MethylB12 treatment on Behavioral and Biomarker Measures in Children with Autism, *JACM,* Accepted March 2010.

Studies showing effectiveness of hydroxocobalamin and folinate for homocysteine reduction in cardiovascular health

1. Elian KM, Hoffer LJ. Hydroxocobalamin reduces hyperhomocysteinemia in end-stage renal disease. *Metabolism*. 2002 Jul; 51(7):881-886

2. Hoffer LJ, Elian KM. Parenteral vitamin B12 therapy of hyperhomocysteinemia in end-stage renal disease. *Clin Invest Med*. 2004 Feb;27(1):10-13.

3. den Heijer M, Brouwer IA, Bos GM, Blom HJ, van der Put NM, Spaans AP, Rosendaal FR, Thomas CM, Haak HL, Wijermans PW, Gerrits WB. Vitamin supplementation reduces blood homocysteine levels: a controlled trial in patients with venous thrombosis and healthy volunteers. *Arterioscler Thromb Vasc Biol*. 1998 Mar;18(3):356-361.

4. Ogier de Baulny H, Gérard M, Saudubray JM, Zittoun J. Remethylation defects: Guidelines for clinical diagnosis and treatment. *Eur J Pediatr.* 1998 Apr;15 7 Suppl 2:S77-S83.

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