

Breaking Down the B's

Source: Nutritional Industry Executive

There are a variety of B vitamins that have many different benefits, but there isn't necessarily one that stands out from the rest. "Trying to identify which B vitamin is best is a little like asking a parent of seven who their favorite child is," said Wright. "The fact is that most B vitamins work together as a system. For instance, there is significant (though controversial) evidence that the B vitamins pyridoxine (B6), folic acid (B9) and cyanocobalamin (B12) work together to reduce the amino acid homocysteine in the blood, which has big implications for heart, brain and circulatory health."

Wright outlined the key B vitamins and how they connect to the following condition-specific areas:

Thiamine (B1) - Used for neural function, liver protection, nerve health, vascular health and kidney health in diabetics. (As an aside, B1 is also used as an internal insect repellent and a transplant aid for mature trees.)

Riboflavin (B2) - Boosts folic acid's colorectal cancer protective effect, increases iron absorption and regulates red blood cell growth, memory, depression, healthy hair, nails, skin and vision. It also has some antioxidant capacity and is sometimes used as a natural yellow colorant in foods and cosmetics.

Niacin (B3) - Increases HDL (good) cholesterol and lowers LDL (bad) cholesterol and triglycerides, and is critically important for cardiovascular health. It reduces acrylamide formation (in combination with B6) in french fries, one of the four basic foods groups for most Americans. It aids in brain repair following a stroke. Niacinamide is known for its usefulness in treating fungal infections, fetal alcohol syndrome and may have a role to play in helping ease the symptoms of multiple sclerosis by preventing NAD (nicotinamide adenine dinucleotide) depletion.

Pantothenic Acid (B5) - Known to be involved as a coenzyme A precursor, which drives the citric acid cycle in human nutrition. It is vital for metabolism and energy production in the body. Derivatives panthenol and pantethine are important for skin and hair health as well as helping to optimize a person's lipid profile.

Pyridoxine (B6) - In combination with folic acid and B12, it helps reduce homocysteine in the blood, which has big implications for heart and brain health as mentioned previously. It is also thought to be protective against colorectal and lung cancer, especially in smokers. B6 helps optimize nervous system health and is sometimes used to treat painful conditions such as neuropathy and carpal tunnel syndrome. There is also some evidence that a derivative, P5P (pyridoxyl-5-phosphate), may help reduce C-reactive protein levels in the blood, which is a marker of inflammation dangerous to the heart and brain.

Folic Acid (B9) - It is a critical element in reducing homocysteine in the blood (in combo with B6 and B12), a major risk factor in heart disease and stroke. It prevents neural tube birth defects in developing infants in utero. It has been shown to improve vascular function and blood pressure in young women. Other intriguing research indicates possible use in reducing hearing loss, depression and Alzheimer's risk in the elderly as well as memory improvement.

Cyanocobalamin (B12) - Useful in homocysteine reduction (see above) via its ability to convert folic acid to its more active form and known to treat pernicious anemia in the elderly. (Some dementia diagnoses are later found to be vitamin B12 deficiencies). It helps metabolize fats and carbohydrates and its derivative, methylcobalamin, is especially important in optimizing nerve health. Vegetarians have special needs for supplemental B12 since their diets are naturally deficient in this critical nutrient. Recent studies also point to its possible use in preventing or treating migraine headaches.