## MANAGING **METABOLIC DEFICIENCIES** ASSOCIATED WITH VASCULAR & NEUROPATHIC CONDITIONS

A PATIENT'S GUIDE TO A NOVEL APPROACH







Your doctor has the option to prescribe an EBM Medical Food for your condition. This brochure explains the advantages of medical foods relating to chronic conditions including vascular disease and peripheral neuropathy.

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### What is a medical food?

Medical foods can help create a healthy environment to repair injured blood vessels and peripheral nerves — and may help to prevent more damage from occurring.

### Medical foods may be considered for a variety of conditions, including:<sup>9</sup>

• Peripheral vascular disease

Peripheral neuropathy

- Chronic pain
- Chronic fatigue

• Fibromyalgia

- Fractures
- Diabetes complications
   Rheumatoid arthritis
- MTHFR Genetic Variant

- Multiple sclerosis
- Heart disease
- Mood disorders
- Cognitive disorders
- Migraines

Medical foods are considered a unique category regulated by the FDA. Medical foods can help manage chronic conditions by addressing the metabolic deficiencies associated with diseases. They are intended for use under medical supervision.<sup>13</sup>

EBM uses only pharmaceutical-grade ingredients.



### What is vascular disease?

Vascular disease is any condition of the blood vessels (arteries and veins) that is not normal. Blood vessels circulate blood through the body. Problems within this vast network can cause severe types of conditions.

One of the most common types of vascular disease is called **peripheral vascular disease (PVD)**.

### What causes peripheral vascular disease?

PVD is caused by **atherosclerosis** — a buildup of plaque — in the arteries that supply blood to your arms, legs, or pelvis.

#### You may have no symptoms, or you might notice:

- Pain, achiness, or fatigue that occurs while walking or exercising, and then disappears after several minutes of rest
- Cold or numb sensation in legs or feet
- Leg pain that worsens when your legs are elevated, but improves when you're sitting
- Leg or foot sores that don't heal

#### **Risk factors for PVD**

- Diabetes
- Family history
- Obesity
- High blood pressure
- High cholesterol
- Smoking
- MTHFR genetic variant
- Elevated levels of homocysteine



People with diabetes have the greatest risk of developing PVD and neuropathy.

### What is neuropathy?<sup>2-4</sup>

Neuropathy is a disorder or condition that occurs when the nerves in your body that are outside the brain and the spinal cord are damaged.

#### Peripheral neuropathy is nerve

damage that occurs anywhere in the body, but typically causes pain and loss of sensation in the hands and feet. This is the most common form of nerve damage.

#### Early symptoms

- Tingling
- Burning
- Numbness
- Muscle weakness, cramping, or atrophy
- Undetected sores on the feet



Autonomic neuropathy refers to symptoms occurring when there is damage to the nerves that manage daily body functions, such as:

- Blood pressure
- Heart rate
- Sweating
- Bowel and bladder emptying
- Digestion

#### Long-term damage

- Difficulty swallowing, digesting
- Bladder control
- Heart function (dizziness, lightheadedness on standing), inability to feel chest pain
- Erectile dysfunction
- Vaginal dryness
- Sweating

PVD and peripheral neuropathy are the leading causes of amputations and disabilities in the U.S.<sup>5</sup>

### What causes neuropathy?<sup>2</sup>

Neuropathy associated with diabetes is called diabetic neuropathy. Other causes of neuropathy include:

- Idiopathic [unknown causes]
- Chemotherapy
- Autoimmune disorders
- Poor blood flow to the legs
- Nerve pressure
- Nutritional deficiencies
- Metformin use
- MTHFR genetic variant
- Elevated
   homocysteine levels

Diabetes is the number one cause of neuropathy<sup>2</sup>

### **Metformin and diabetes**<sup>6</sup>

Metformin is a first-line therapy for Type 2 diabetes due to its benefits of glycemic control and improved insulin sensitivity.

 "Nutritional therapy should be considered upon initiation of, as well as during, metformin therapy"
 ADA Positioning Statement

### Metformin-induced peripheral neuropathy<sup>7,8</sup>

When available folate and vitamin  $B_{12}$  are depleted, this causes a cascade of reactions that affect nerve structure and function — which in turn lead to peripheral neuropathy.

#### These reactions include:

1

2

3

Reduced blood flow to peripheral nerves.

Increase homocysteine levels causing blood vessel damage.

Reduced nerve repair causing nerve damage.





### Diabetic neuropathy is a disease that will worsen over time



Healthy tissue

Diabetes-related metabolic or Ca vascular conditions can cause no capillary damage es

Capillary damage can lead to nerve damage, loss of sensation, especially in extremities, and increase risk of injury



### Homocysteine and MTHFR<sup>®</sup>

Risk factors for both peripheral vascular disease and peripheral neuropathy include elevated homocysteine levels and the MTHFR genetic variant.9

Homocysteine is an amino acid that is produced as a byproduct of consuming meat. Homocysteine is normally converted into other amino acids. An abnormal accumulation of homocysteine is believed to damage the cells that line the arteries, and is a marker for the development of many chronic conditions including peripheral vascular disease and peripheral neuropathy.

### How do I lower homocysteine levels?<sup>10-12</sup>

You can lower your homocysteine levels by eating less meat. You can also take the B vitamins folic acid (folate),  $B_6$ ,  $B_{12}$ , and  $B_2$ . However, it is important that vour body be able to break down and utilize these vitamins. and that is where MTHFR becomes important.

MTHFR genetic variant facts: 10-12

- Present in up to 50% of the population — and at higher percentages in those with diabetes
- Reduces folate levels and increases homocysteine levels

**Drugs that increase homocysteine levels** and related vitamin deficiencies include:

Nicotinic acid

 Fenofibrates Metformin

Methotrexate



**MTHFR** is an enzyme involved in the

metabolism of folate. Traditional folic

acid (folate) must be broken down in

the body before it can be used, and

variants of the MTHFR gene lead to

Known risk factor for development

Associated with other conditions

cognitive decline, depression/ anxiety, renal disease, and

including vascular disease,

osteoporosis

and severity of diabetic neuropathy

decreased enzymatic activity.

**Biofolate<sup>®1</sup>**, the patented pure crystalline activated form of folate, is unaffected by the MTHFR genetic variant



‡Featured in EB-N3DR, EB-N5DR and EBN6DR products



A simple DNA swab of your saliva can determine whether you have the MTHFR genetic variant. Visit www.EBMmedical.com or call 844-360-4095 for a requisition form for your doctor.

### Metabolic management of vascular and neuropathic conditions with medical foods

The active pharmaceutical-grade ingredients in EBM Medical Foods work together to support many essential functions within the body, specifically those involved in peripheral neuropathy and peripheral vascular disease.

### **Ingredient Guide**<sup>14-22</sup>

ACTIVE INGREDIENT	DESCRIPTION
<b>L-methylfolate Calcium</b> [active folate (pure crystalline)]	<ul> <li>Blood flow and nerve repair</li> <li>Homocysteine levels</li> </ul>
Methylcobalamin [active Vitamin B <sub>12</sub> ]	<ul> <li>Peripheral nerve repair</li> <li>Homocysteine levels</li> </ul>
<b>Pyridoxal 5'-Phosphate</b> [active Vitamin B <sub>6</sub> ]	<ul><li>Harmful substances that damage nerves</li><li>Homocysteine levels</li></ul>
<b>Cholecalciferol</b> [active Vitamin D <sub>3</sub> ]	<ul> <li>Factors involved with nerve health</li> </ul>
Alpha Lipoic Acid [antioxidant]	<ul> <li>Blood flow to the peripheral nerves</li> <li>Inflammation</li> </ul>
<b>Benfotiamine</b> [active Vitamin B <sub>1</sub> ]	<ul> <li>Pathways involved in damaging blood vessels and peripheral nerves</li> </ul>
<b>Riboflavin</b> [active Vitamin B <sub>2</sub> ]	- Homocysteine levels

Manufactured in compliance with current Good Manufacturing Practices [cGMP].

increase – decrease

Each delayed-release,

vegan capsule is allergen

and dye free.

### Peripheral neuropathy: recommended use and dose per formulation and patient condition<sup>\*</sup>

NO SYMPTOMS & I		SYMPTOMS W		
EB-N5 <sup>DR</sup>	EB-N6 <sup>dr</sup>	EB−N3 <sup>™</sup>	EB−N5 <sup>DR</sup>	EB-N6 <sup>dr</sup>
Tree	En altra de la companya de la compan	Time .	True	Ener .
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Matcal Foot	180 Capsules Nerdoui Food	Ministra Food	Manue Fred	185 Capacites Medica Food
RBM	Person in Physics 24	SEBM and and	EEBM warden	SEBM manufacture
1 capsule daily	1 capsule daily	1 capsule daily	2 capsules daily	2 capsules daily
6 MONTH 9			3 MONTH SUPPLY	

### EB-N3<sup>DR</sup> Delayed Release\*\*

L-methylfolate Calcium6 mg	Pyridoxal 5'-Phosphate70 mg
Methylcobalamin 4 mg	Riboflavin1.3 mg

Dosage: Adult dose is 1 capsule daily or as directed by physician.

### **EB-N5**<sup>DR</sup> Delayed Release<sup>\*\*</sup>

L-methylfolate Calcium	6 mg
Methylcobalamin	4 mg
Pyridoxal 5'-Phosphate	70 mg

Cholecalciferol	5000 IU
Alpha Lipoic Acid	600 mg

Dosage: Adult dose is 1 capsule twice daily with food or as directed by physician. A.M. & P.M. dosing is recommended.

### EB-N6<sup>DR</sup> Delayed Release\*\*

L-methylfolate Calcium6 mg	
Methylcobalamin 4 mg	
Pyridoxal 5'-Phosphate70 mg	

Alpha Lipoic	Acid	

Benfotiamine .....

Dosage: Adult dose is 1 capsule twice daily with food or as directed by physician. A.M. & P.M. dosing is recommended.

\* Consult with your physician to determine the right usage and dosage.

\*\* Products feature delayed-release capsules for targeted delivery to promote tolerability.

..300 mg

# Now that I have been prescribed an EBM Medical product, what are the next steps?



website at www.EBMmedical.com

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