

## High Dose Biotin

### Patient Information

Updated: 10.2019

USED FOR	<ul style="list-style-type: none"> <li>Multiple sclerosis (MS), including relapsing-remitting and progressive MS.</li> <li>Biotin will not cure MS. It may help to improve walking distance and slow disease progression.</li> </ul>
HOW IT WORKS	<ul style="list-style-type: none"> <li>Biotin may help support nerve cells under stress. It also aids fatty acid synthesis, which may lead to myelin production.</li> <li>Biotin is Vitamin H or B7, a water soluble vitamin that supports energy metabolism and production in the body.</li> </ul>
DOSE	<ul style="list-style-type: none"> <li>Biotin 300 mg capsule by mouth once daily or 100 mg by mouth 3 times a day.               <ul style="list-style-type: none"> <li>In 3 randomized controlled trials, Biotin 100 mg 3 times a day was the dose found to be effective in reducing disability in progressive MS.</li> <li>A smaller open label trial found that doses lower than this did not appear to be effective.</li> </ul> </li> </ul>
HOW IT IS SUPPLIED  	<ul style="list-style-type: none"> <li>Biotin is available over-the-counter (OTC) in various forms without a prescription at local and online drug stores. Look for "High-Dose" Biotin formulations with at least 100 mg per capsule or tablet.</li> <li>Products that have the United States Pharmacopeia (USP) Verified Mark on the label guarantee its safety and quality.</li> <li>Biotin can also be obtained at a compounding pharmacy with a prescription.</li> </ul>
HOW IT IS GIVEN	<ul style="list-style-type: none"> <li>Biotin may be taken with or without food.</li> </ul>
OTHER SOURCES OF BIOTIN	<ul style="list-style-type: none"> <li>Biotin can be found in brewer's yeast; cooked eggs, especially egg yolk; sardines; nuts (almonds, peanuts, pecans, walnuts) and nut butters; soybeans; other legumes (beans, black-eyed peas); whole grains; cauliflower; bananas; and mushrooms.</li> <li>Raw egg whites contain a protein called Avidin that interferes with the body's absorption of biotin.</li> </ul>
STORAGE	<ul style="list-style-type: none"> <li>Biotin may be kept at room temperature. Keep the medication away from direct sunlight, extreme heat, or cold.</li> </ul>
COMMON SIDE EFFECTS	<ul style="list-style-type: none"> <li>Generally, there are no side effects or minimal side effects with taking Biotin.</li> </ul>

DRUG INTERACTIONS	<ul style="list-style-type: none"> <li>• Before starting or stopping ANY medication or supplements, please notify your pharmacist to check for interactions.</li> <li>• Certain anticonvulsants, antibiotics, and cholesterol medications can lower body biotin levels.</li> </ul>
LAB INTERACTIONS	<ul style="list-style-type: none"> <li>• High dose Biotin can affect the accuracy of MANY blood tests including common tests for a heart attack (Troponin level), Hepatitis B serologies and thyroid function (TSH). Inform any all health care providers you are taking Biotin especially if there is a concern for a heart attack.</li> <li>• We recommend holding Biotin for 3 days BEFORE lab tests and resuming following the blood draw.</li> </ul>
MONITORING	<ul style="list-style-type: none"> <li>• Lab work is not required for Biotin.</li> </ul>
MORE INFORMATION	<ul style="list-style-type: none"> <li>• Websites: <a href="http://www.nationalmssociety.org">www.nationalmssociety.org</a></li> <li>• Clinical Trials: <ul style="list-style-type: none"> <li>• Sedel F. et. Al. High doses of biotin in chronic progressive multiple sclerosis: a pilot study. Multiple Sclerosis and Related Disorders 2015;4;159-169. Tourbah A, et al. MS-SPI study group. MD1003 (high-dose biotin) for the treatment of progressive multiple sclerosis: A randomised, double-blind, placebo-controlled study. Mult Scler. 2016;13;1719-31.</li> </ul> </li> <li>• Research study: <ul style="list-style-type: none"> <li>• If you are a patient at UCSF MS center, we may be interested in having you participate in research to better understand the effects of biotin in MS patients.</li> <li>• A larger confirmatory study with 600 patients with progressive MS is currently underway: <a href="https://clinicaltrials.gov/ct2/show/NCT02936037">clinicaltrials.gov/ct2/show/NCT02936037</a></li> </ul> </li> </ul> <p>⇒ If you are interested in participating, please contact the clinical trial coordinator at UCSF: Naomi Okinishi, Ph: 415-502-7604.</p>