What is biotin?

Biotin is a water-soluble B-vitamin (B7) that is integral to energy and metabolism (gluconeogenesis, fatty acid synthesis, and carbohydrate utilization).1

Why has biotin intake increased?

Biotin has gained increasing popularity as an over-the-counter supplement and is commonly included in multivitamins and beauty products marketed for hair and nails.2-4 Many of these hair-and-nail vitamins include biotin at concentrations up to 100 times the Dietary Reference Intake (e.g., 3000 μg); some report as much as 10,000 μg.2 In addition, clinicians may prescribe biotin supplementation to help prevent biotin deficiency in pregnancy7-8 or to reduce leg cramps in dialysis patients.9 Clinicians may also prescribe high doses of biotin for multiple sclerosis, inborn metabolic disorders, and mitochondrial energy disorders.9,10-15

What is the Dietary Reference Intake for biotin?

The Dietary Reference Intake (DRI), or adequate intake in the case of biotin, is age-dependent. In adults, the adequate intake is 30–70 μg/day.16-18 This corresponds to an adult reference range of approximately 0.12–0.54 ng/mL,19 depending on the population from which the reference interval was derived.

In what foods is biotin found?

Meats and Poultry
– Beef Liver
– Hamburger
– Pork Chop
– Egg

Fish
– Salmon
– Tuna

Dairy
– Milk (2%)
– Yogurt (Plain)

Fruits and Vegetables
– Sweet Potato
– Spinach
– Broccoli
– Banana
– Apple

Nuts and Grains
– Sunflower Seeds
– Almonds
– Oatmeal
– Bread (Whole Wheat)
What is the potential risk of biotin interference with clinical laboratory tests?

- Multiple manufacturers use a streptavidin biotin complex in many of their immunoassays. Advantages of this complex include its high binding affinity, adaptability for binding antigen or antibody, and ability to readily attach to a solid phase (such as a microbead).
- Supra-physiological doses of biotin ingested for either cosmetic or pharmacologic use can result in serum concentrations as high as 1160 ng/mL (μg/L) 1 hour after a single oral biotin dose of 300 mg. 20
- Biotin interference can cause either falsely depressed or falsely elevated patient test results.

How long does it take after biotin use is discontinued for a patient’s biotin to reach a level that does not impact results?

The time after last use required for a patient’s biotin to reach a level that does not impact results depends on a variety of factors including, but not limited to, dose, duration of use, clinical conditions, age, and the half-life of biotin in the serum.

- For a single oral biotin dose of approximately 600 μg, which is greater than DRI, the half-life has been reported as less than 2 hours. 21
- More recently, the half-life for single oral biotin doses between 100–300 mg (100,000–300,000 μg) has been shown to vary between 8–19 hours. 12-13
- For individuals ingesting mega-doses of biotin, up to 300 mg/day, serum concentrations as high as 1160 ng/mL have been observed. 14

References:
16. 2016 Institute of Medicine report; Dietary Reference Intakes (DRIs): Vitamins.

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