

Fact sheet for physicians

Biotin supplement and influence on results of immunoassays



About biotin

Biotin, sometimes referred to as Vitamin B7, or Vitamin H, is a water soluble vitamin of the B-complex. Despite the lack of clinical evidence^{1,2}, high concentration biotin supplements (> 5,000 mcg) have been made available. Due to an increase in the availability of biotin in very high doses, there is concern about an increase in possible interference with certain laboratory tests.

Biotin and laboratory results

Streptavidin and biotin naturally form a strong, highly specific and stable bond. This system has been used for many years and allows the development of sensitive, specific and accurate immunoassays. There are different types of interference and sources of error that can affect the accuracy of immunoassays.³⁻⁵ While the intake of high doses of biotin can lead to interference with immunoassays, there is no risk for such assay interference associated with the intake of biotin as part of a standard multivitamin.⁶

Biotin use: three patient populations

Because biotin deficiency is considered extremely rare, no RDI exists. Suggested biotin intake for adults ranges from 30 – 100 mcg per day.¹ When considering biotin use as a supplement, keep in mind three specific populations:

- Daily multivitamin use
- OTC lifestyle high-dose biotin supplementation
- Medical high-dose biotin therapy

Daily multivitamin use:

Many consumers take biotin as an ingredient within a standard daily multivitamin. This dose is typically 30 – 60 mcg.

OTC lifestyle high-dose biotin supplementation:

Some consumers take high-concentration biotin supplements (5,000 – 10,000 mcg) currently packaged to promote hair, skin and nail beauty.

Medical high-dose biotin therapy:

High dose biotin (5,000 – 30,000 mcg/day) is used as a therapy for rare inherited conditions such as biotinidase deficiency, holocarboxylase synthetase deficiency⁷ and biotin-thiamin-responsive basal ganglia disease^{8,9}.

High dose biotin (300,000 mcg/day) is also currently being used in clinical trial settings as a potential treatments for patients with multiple sclerosis.¹⁰

Biotin interference in Roche Elecsys® immunoassays

To mitigate potential interference, patients taking biotin doses >5,000 mcg should wait at least 8 hours after the last biotin administration before a sample is taken as stated in all Roche immunoassay package inserts.

Identification of patients under biotin treatment

To ensure testing accuracy, it is important to ask patients about their use of all supplements, including biotin, before any laboratory tests are run. Patients may not know the exact dose of biotin that they are taking, but the following flow chart will help guide conversations with your patient.

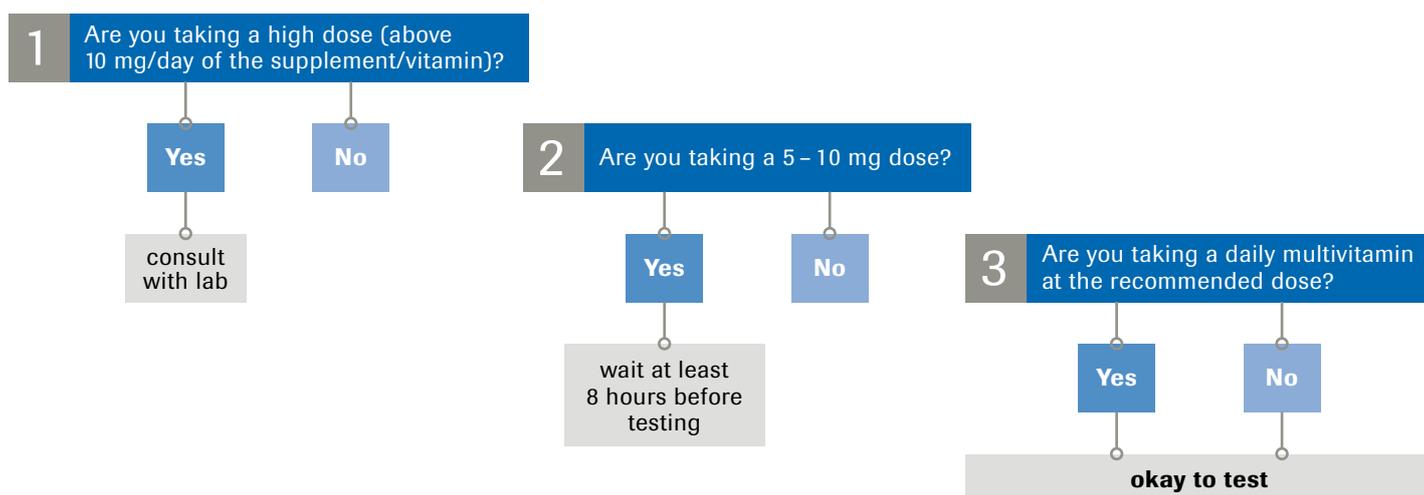
Patient testing

In both normal and emergency settings, it is important to ask patients the right questions ahead of testing. By asking patients about their biotin intake levels, you can be aware of potential interference from the outset and factor this into your diagnostic evaluation, alongside other key parameters. Diagnosis and a decision of treatment should be evaluated with regard to the clinical picture.

In an emergency setting, we recommend proceeding with testing, taking into account the full patient profile and undergoing re-testing if you suspect interference. The impact of the biotin interference results depends on specific aspects of the assay design. For further guidance and detail, contact your laboratory.

Physician flow chart

Establish high dose



References

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