

OTC Thyroid 'Boosters' May Harm

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Patients who take over-the-counter supplements that promise to enhance thyroid function may get more than they bargained for, endocrinologists warn.

The supplements could contain unlabeled ingredients, including the active thyroid hormones T3 and T4, which could make patients hyperthyroid, increasing the risk of side effects such as high heart rate, sweating, and anxiety, according to [Stephanie Lee, MD, PhD](#), director of the thyroid health center at Boston Medical Center.

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"Over-the-counter thyroid supplements are not supposed to contain any thyroid hormone," Lee told *MedPage Today*. "But there's no truth-in-labeling in these supplements."

"People who are unsuspecting, or who are already on thyroid medications ... can become significantly and severely hyperthyroid," Lee said.

Lee said thyroid supplements have gained popularity because the symptoms of hypothyroidism -- especially fatigue and weight gain -- are so common in normal aging. Women looking for a quick fix to those problems may be attracted to supplements that promise to boost thyroid function.

The problem, Lee said, is that only about 6% to 8% of women are truly hypothyroid and need hormone replacement. When supplements claim to only contain herbs, women may think this can do little harm.

But when those supplements do contain thyroid hormone without saying so on their labeling, and women without genuine thyroid deficiency take them, that's when problems can arise, Lee said. And it's not uncommon for these supplements to be mislabeled.

Supplements Use Cow Thyroid

Grace Kang, MD, chief of endocrinology at [Landstuhl Regional Medical Center](#) in Germany, and colleagues decided to look into 10 popular thyroid supplements after one of their co-authors saw a patient who developed thyrotoxicosis after taking over-the-counter thyroid supplements.

In a study in *Thyroid*, they analyzed the biochemical composition of these supplements via liquid chromatography to measure levels of the two main thyroid hormones -- thyroxine (T4) and triiodothyronine (T3).

They found that nine of the 10 supplements had detectable levels of either thyroid hormone, and when taken at recommended daily doses, could give patients a much bigger kick than clinicians would recommend even for deficient patients.

Nine of the supplements contained T3, ranging from 1.3 mcg to 25.4 mcg per tablet. If patients took those supplements as recommended on the label, they could get as much as 32 mcg per day.

Five of the supplements were found to contain T4, which is essentially levothyroxine (Synthroid), the main medication used by doctors to treat hypothyroidism. The doses ranged from under 0.5 mcg to about 23 mcg, the latter being equivalent to the lowest starting dose of the drug.

If taken per label instructions, patients may be ingesting approximately 92 mcg of T4 per day, Kang and colleagues found.

Even when patients do have clinically diagnosed hypothyroidism, giving the exact needed dose of thyroid hormone is critical, because thyroid drugs are classified by the FDA as having a narrow therapeutic index.

"That means the amount of medication is so important to have just right, that it requires physicians monitor and measure hormone levels," Lee said.

When patients with normal thyroid levels get this much hormone -- the kind in supplements usually comes from cows -- they can develop hyperthyroidism. Lee said patients will feel like they've had too much coffee with a bolstered heart rate and feeling shaky, as well as a bit edgy.

And it's not just excess thyroid hormone that poses a problem for thyroid supplements, Lee said. Some are formulated with high doses of iodine, the main element used by the thyroid to synthesize its hormones.

Often these supplements are made from seaweed, she said, and can contain as much as 800 mcg of iodine per drop, when the standard recommended daily intake is only 150 mcg.

They can also be contaminated with heavy metals, particularly arsenic, Lee said. Seaweed is exposed to these compounds in seawater and when it's dried out, the arsenic and other contaminants can concentrate.

"It's dangerous to take these supplements," Lee said. "You just don't know what's in there."

Supplement Regulations

The \$24 billion supplement industry faces little regulation. It's governed by the [1994 Dietary Supplement Health and Education Act \(DSHEA\)](#), which exempts these pills from FDA quality assurance tests prior to getting on the market.

But experts say clinicians can pick up that slack.

"My study emphasizes that providers remain alert about patients' supplement use, and educate patients about the potential adverse effects related to dietary and herbal supplements marketed to aid thyroid function," Kang said in an email to *MedPage Today*.

Lee pointed out that clinicians need to be especially vigilant with patients whose thyroid levels are particularly challenging to control.

"You should not only make sure that they're taking their medication correctly -- on an empty stomach 30 minutes away from food or coffee, and 2 hours away from iron -- [but] you really have to ask about supplement use," Lee said. "It's clear enough that thyroid hormones in supplements can make someone's levels abnormal even if they only take one tablet a day."

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