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When people have too little thyroid [hormone](#), called hypothyroidism, they usually require lifelong treatment with levothyroxine to supplement the body's thyroid hormone, thyroxine (T4). Some people have subclinical hypothyroidism, which occurs when the [thyroid gland](#) needs more stimulation to produce adequate thyroid hormone levels. These individuals will have modest elevations in thyroid-stimulating hormone (TSH), which stimulates thyroid hormone production.

Subclinical hypothyroidism is a mild or early form of thyroid disease, and these patients also routinely receive thyroid hormone replacement, said the study's principal investigator, Jennifer Mammen, M.D., Ph.D., an assistant professor at Johns Hopkins University in Baltimore, Md. However, Mammen notes that this interpretation of high TSH with normal T4 levels may not be correct in all [older adults](#).

"Many older adults have an elevation in TSH with normal thyroid levels. Our earlier research showed that this can reflect developing hypothyroidism in some, while in others, it is a form of adaptation to age-related changes in health instead of thyroid disease," Mammen said. "As a result, some of these older people may be receiving inappropriate or excessive thyroid hormone therapy, treatment that may counteract important adaptations needed for healthy aging."

The researchers studied the effects of levothyroxine therapy on survival in adults ages 65 and older. They used data from 1,054 participants of the Baltimore Longitudinal Study of Aging, a long-running observational study from the National Institute on Aging. All participants had at least one TSH and T4 measurement since 2003. Mammen's research team looked at the risk of dying during one-year intervals from 2003 to 2018 and adjusted their statistical analyses for multiple demographic and

health factors that may influence survival.

They found that among older adults, use of thyroid hormone increased risk of death 60% year over year (hazard ratio 1.6). They also limited the analysis to compare individuals with normal TSH levels, reflecting normal thyroid function, to those on thyroid hormone with normal TSH levels, who were therefore treated to target, and found those on treatment had almost double the risk of dying compared with untreated persons (hazard risk 1.9), Mammen reported.

Despite studies showing that hormone treatment of an isolated high TSH may not benefit older people, Mammen said, "we were surprised that we were able to demonstrate harm associated with thyroid hormone supplementation. Our work supports the growing calls to use age-specific TSH reference intervals to determine the threshold for thyroid hormone treatment."

Mammen also recommended repeating testing after finding an isolated elevation of TSH in older adults, because levels can fluctuate. "We advocate being cautious and conservative when considering [thyroid](#) hormone treatment," she said.

Provided by The Endocrine Society

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