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**Association between primary hypothyroidism and metabolic dysfunction-associated steatotic liver disease: an updated meta-analysis**

Mantovani A, Csermely A, Bilson J, et al. [Association between primary hypothyroidism and metabolic dysfunction-associated steatotic liver disease: an updated meta-analysis.](https://gut.bmj.com/content/73/9/1554) Gut 2024; 73: 1554-1561. doi: 10.1136/gutjnl-2024-332491.

Metabolic dysfunction-associated steatotic liver disease (MASLD) is a leading cause of chronic liver disease. The pathophysiology of MASLD is diverse, including alterations of glucose and lipid metabolism. Thyroid hormones, particularly through THR-β1 (thyroid hormone receptor-β), play a critical role in glucose and lipid metabolism. Patients with MASLD or metabolic dysfunction-associated steatohepatitis (MASH) often exhibit impaired intrahepatic THR-β. Liver-directed, selective THR-β agonists, such as Resmetirom, have been developed to aid regulation of intrahepatic thyroid hormone concentrations in this patient group.

This comprehensive systematic review and meta-analysis examined the association between primary hypothyroidism and MASLD as well as the association between hypothyroidism and the risk of severe histological forms of MASLD. The analysis included 28 observational studies (24 cross-sectional, 4 longitudinal) from Asia, Europe, the USA, and Mexico, involving approximately 76.5 million participants. MASLD was diagnosed through liver biopsy, imaging techniques, or (International Classification of Diseases) ICD codes, excluding significant alcohol use or other chronic liver disease causes

Hypothyroidism was significantly associated with a higher risk of MASLD (pooled random-effects OR (odds ratio) 1.43, 95%CI 1.23 to 1.66; I2=89%). The results remained consistent when stratified according to the method of MASLD diagnosis and when adjusted for age, sex, existing diabetes and/or other common metabolic risk factors.

Five liver biopsy-based studies showed that hypothyroidism was associated with approximately 2.8-fold increased risk of having MASH or fibrosis stage F≥2 (random-effects OR 2.84, 95% CI 2.07 to 3.90; I2=0%).

These findings suggest a need for MASLD screening in patients with primary hypothyroidism, given their elevated risk for development of MASH or advanced fibrosis. Further studies will validate this study and analyse other possible clinical implications.