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## **Pitfalls in the measurement and interpretation of thyroid function tests.**

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### **Abstract**

Thyroid function tests (TFTs) are amongst the most commonly requested laboratory investigations in both primary and secondary care. Fortunately, most TFTs are straightforward to interpret and confirm the clinical impression of euthyroidism, hypothyroidism or hyperthyroidism. However, in an important subgroup of patients the results of TFTs can seem confusing, either by virtue of being discordant with the clinical picture or because they appear incongruent with each other [e.g. raised thyroid hormones (TH), but with non-suppressed thyrotropin (TSH); raised TSH, but with normal TH]. In such cases, it is important first to revisit the clinical context, and to consider potential confounding factors, including alterations in normal physiology (e.g. pregnancy), intercurrent (non-thyroidal) illness, and medication usage (e.g. thyroxine, amiodarone, heparin). Once these have been excluded, laboratory artefacts in commonly used TSH or TH immunoassays should be screened for, thus avoiding unnecessary further investigation and/or treatment in cases where there is assay interference. In the remainder, consideration should be given to screening for rare genetic and acquired disorders of the hypothalamic-pituitary-thyroid (HPT) axis [e.g. resistance to thyroid hormone (RTH), thyrotropinoma (TSHoma)]. Here, we discuss the main pitfalls in the measurement and interpretation of TFTs, and propose a structured algorithm for the investigation and management of patients with anomalous/discordant TFTs.

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## **How to interpret thyroid function tests.**

[Koulouri O<sup>1</sup>](#), [Gurnell M](#).