



Healthscope  
PATHOLOGY

COLLECTION  
CENTRE

# Reverse T3 (rT3)

Thyroid hormones are essential in maintaining and regulating the body's metabolism. Triiodothyronine (T3) is the most active of the thyroid hormones. Approximately 85% of circulating T3 is produced by monodeiodination of thyroxine (T4) in tissues such as liver, muscle and kidney. Selenium and zinc are required for this process.



Reverse T3 (rT3) is an inactive form of T3 that is produced in the body particularly during periods of stress. rT3 differs from T3 in that the missing deiodinated iodine is from the inner ring of the thyroxine molecule compared with outer ring on T3. rT3 is measured by a blood test.

Under normal conditions T4 will convert to both T3 and rT3 continually and the body eliminates rT3 quickly.

Under certain conditions, more rT3 is produced and the desirable conversion of T4 to T3 decreases. This occurs during fasting, starvation, illness such as liver disease and during times of increased stress.

This becomes a vicious cycle as rT3 competes with T3 as a substrate for the 5-deiodinase enzyme. This inhibits the conversion of T4 to T3, with more T4 being converted to more rT3.

An increased production of rT3 is often seen in patients with disorders such as fibromyalgia, chronic fatigue syndrome (CFS), Wilson's Thyroid Syndrome and stress. Measurement of rT3 is also valuable in identifying sick euthyroid syndrome where active T3 is within normal range and rT3 is elevated.

## Specimen Requirements

- A blood specimen is required, which can be taken at any time of the day. Fasting is not required.

## Specimen Collection

Once the practitioner has given the patient their request form, the patient takes it to their nearest Healthscope Pathology Collection Centre. Please call 1300 55 44 80 or visit [www.functionalpathology.com.au](http://www.functionalpathology.com.au) for a full list of Healthscope Pathology Collection Centres.

## Turnaround Time

The standard turn around time for this test is 7 – 10 working days from the date the patient's specimen/s are received at our laboratory.

## Test Results

Patient results will be delivered via mail, unless requested otherwise. However, we can also issue results via:

- Fax
- Electronic Download
- Web Based Results

## Technical Support

All Healthscope Functional Pathology tests are accompanied by an Interpretive Guide to assist practitioners in their clinical understanding and patient management for each result. Healthscope Functional Pathology also has experienced full time Technical Advisors available for practitioners to discuss appropriate test selection, interpretation of test results, individual cases and other technical matters. Please call 1300 55 44 80 between the hours of 8.30am and 5.30pm AEST or email [infofp@healthscope.com.au](mailto:infofp@healthscope.com.au)

## Companion Tests

- **Thyroid Hormone Profile**
- **Adrenal Hormone Profile**

The results of the Reverse T3 (rT3) test may indicate the need for, or be supported by additional Healthscope Functional Pathology tests.

For example, the Thyroid Hormone Profile measures the levels of unbound TSH, fT4 and fT3 which are available to the tissues and reflects a true measure of the body's metabolic rate.

Disorders of the thyroid are among the most common diseases of the endocrine system, particularly in women. Thyroid function decreases with age and an underactive thyroid or hypothyroidism (myxoedema) is most common in menopausal and post menopausal women.

The Adrenal Hormone Profile, which measures Cortisol and DHEA-S over a 24 hour period, may also be a useful test as increased stress can result in higher levels of rT3.