# Short Synacthen Test

SST

**NB Anyone wishing to use this procedure should first check the website for the current version. Only the version on the website is authorised**

**Purpose of the Test**

Diagnosis of adrenocortical insufficiency.

**Principle of the Test**

Synacthen (synthetic adrenocorticotrophic hormone) stimulates cortisol release by the adrenal cortex.

**Limitations and Contraindications**

Contraindicated if previous adverse reaction to Synacthen.

**Specimen Requirements, Means of ID**

Cortisol measured on serum (yellow top vacutainer). Samples must be labelled in accordance with the BSPS policy for rejection of samples available on the trust website:

http://www.nhspathology.fph.nhs.uk

**Required Equipment and Reagents**

Intravenous cannula

Intravenous synacthen, 250 µg

**Instructions for Performance of Examination**

**PATIENT PREPARATION**

Preferably start test between 8:30 and 9:30 h.

If the patient is already treated with hydrocortisone or another glucocorticoid, the morning steroid dose should be delayed until after completion of the synacthen test.

**PROCEDURE**

Insert intravenous cannula

| | | | |
|---|---|---|---|
| Synacthen (IV/IM at 0 minutes) | Adult: | 250 | µg |
| | Child (0 - 6 months): | 62.5 | µg |
| | Child (6 months - 2 years): | 125 | µg |
| | Child (more than 2 years): | 250 | µg |

| SAMPLING PROTOCOL | | | |
|---|---|---|---|
| **Time (minutes)** | **Cortisol** | **Renal profile** | ***ACTH** |
| 0 | ✓ | ✓ | ✓ |
| 30 | ✓ | ✓ | - |

* Special specimen collection requirements if adrenocorticotrophic hormone (ACTH) measured: Avoid patient stress; transport on ice; deliver to the laboratory within 30 minutes of venepuncture; visible haemolysis will invalidate test; minimum 3 mL plasma required.

## INTERPRETATION OF RESULTS

| | | |
|---|---|---|
| Basal cortisol (8:00 – 9:30 h) reference range: | 140 - 690 | nmol/L. |
| Cortisol response at 30 minutes: | | |
| Inadequate response to synacthen | < 460 | nmol/L |
| Equivocal response to synacthen | 460 - 550 | nmol/L |
| Adequate response to synacthen | > 550 | nmol/L |

Failure to respond to synacthen suggests primary or secondary adrenal failure or suppression of the HPA axis. Send for ACTH measurement if proven adrenocortical insufficiency to differentiate between primary and secondary causes.

NOTES

- A detailed history of steroid therapy required to evaluate possibility of HPA axis suppression.
- Secondary adrenal failure may rarely be associated with normal responses.
- If secondary adrenocortical insufficiency likely (e.g. post pituitary surgery) proceed directly to combined anterior pituitary function tests.

## References

1. *Bouloux, PMG and Rees LH. Diagnostic tests in endocrinology and diabetes. Chapman and Hall Medical Press 1994.*

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