

Department:	Biochemistry		
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Document title:	Endocrine Dynamic Function Test Protocols - Adults		

## Arginine Stimulation Test

Arginine stimulates growth hormone secretion in healthy individuals but response will be impaired in hypopituitarism.

### Indications

Investigation of growth hormone reserve in children and as a secondary confirmatory test in adults or in cases where the insulin tolerance test and glucagon test are contra-indicated.

### Side effects and Precautions

- Some adolescents may need sex hormone priming before this test. Please check with the requesting doctor.
- Arginine can cause nausea and some irritation at the infusion site and the patient should be made aware of this.
- Arginine can cause vasospasm so sampling may be difficult if only one cannula is used. For this reason large veins should be selected.
- Ensure patient is recumbent during procedure (BP may fall by 20-30 mmHg in first 30 mins).

### Requirements

- Arginine 2 x 100ml of 20% (each 100ml bottle contains 20g L-Arginine) (0.5g/kg – max dose 40 g)
- Normal saline (0.9% saline)
- 5 brown top serum tubes
- *iv* cannula

### Procedure

#### PATIENT PREPARATION

- If the patient is on growth hormone replacement, this should be stopped for one month before testing.
- Fast the patient from midnight before the test (water is allowed).
- Weigh the patient, document accurately in the medical notes and calculate dose.

Minutes	Procedure	Samples
-30	Insert an indwelling cannula into each arm (one for infusion and one to take blood from) Allow the patient to rest for at least 30 mins.	
0	Take basal sample for <b>growth hormone</b> .	1 x brown top serum tube
0	Infuse L-arginine hydrochloride over 30 minutes at a dose of 0.5g/kg (max 40g) in 500mLs 0.9% saline	
30	Take sample for <b>growth hormone</b>	1 x brown top serum tube
60	Take sample for <b>growth hormone</b>	1 x brown top serum tube
90	Take sample for <b>growth hormone</b>	1 x brown top serum tube
120	Take sample for <b>growth hormone</b>	1 x brown top serum tube

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### Interpretation of results

**Adults:** GH should rise to at least 5.3 µg/L  
GH levels of <3 µg/L suggest severe growth hormone deficiency