SydPath
ST VINCENT'S PATHOLOGY

www.sydpath.com.au

TESTOSTERONE INFORMATION SHEET

PHYSIOLOGY

Testosterone is the major serum androgen. It is a 19 carbon steroid hormone produced from cholesterol by enzymatic conversion and is a precursor of oestradiol. In men the majority of serum testosterone is secreted from Leydig cells in the testes in response to luteinising hormone (LH) secreted from anterior pituitary. Small amounts are secreted from the adrenal glands or produced by peripheral conversion from androstendione.
Testosterone provides negative feedback to the hypothalamus and pituitary to regulate serum levels by inhibition of LH secretion. In men there is a marked rise in testosterone during puberty followed by a plateau and then a gradual decline with older age.
Testosterone is the principle circulating androgen in women. It is derived approximately 25% from adrenal glands, 25% from the ovaries and 50% by peripheral conversion from androstenedione or DHEA.
In plasma approximately 40 % of testosterone is bound to Sex Hormone Binding Globulin (SHBG), 55% to albumin and less than 5% is unbound (free testosterone). Free testosterone enters cell by diffusion and acts via cytosolic receptor by increasing the rate of protein synthesis producing growth, male phenotype and anabolism. Some effects of testosterone are mediated following conversion by 5alpha reductase to dihydrotestosterone (DHT) which has a markedly increased affinity for the androgen receptor.

INDICATIONS FOR TESTING

Testosterone testing is typically performed to look for reduced levels in men and increased levels in women. In most circumstances a total testosterone is sufficient for clinical decision making. Measurement of SHBG can assist with interpretation.

TOTAL TESTOSTERONE REFERENCE INTERVALS

		Range (nmol/L)			Range (nmol/L)
Female	0 - 1 year	0 - 0.8	Male	0 - 5 years	0 - 0.4
	2 - 5 years	0 - 0.4		6 - 10 years	0 - 0.8
	6 - 10 years	0 - 0.8		11 - 17 years	0 - 32
	> 10 years	0 - 1.8		18 - 50 years	10 - 32
				>50 years	8 - 32

MEASUREMENT

Serum testosterone is measured in routine venous serum or heparin plasma collections with results available the same day as collection. SydPath uses the Roche Modular system for measurements.

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