TEST: **SEX HORMONE BINDING GLOBULIN (SHBG)**

**PRINCIPLE:**

SHBG is a glycoprotein responsible for blood transport of testosterone and estradiol. Less than 2% of biologically active steroids are free in the circulation with the remainder being bound mostly to SHBG and albumin. SHBG has a high binding affinity to the 17-hydroxysteroid hormones while albumin has a low binding affinity. Initially, the free portion or unbound hormone fraction was believed to be the only biologically active form. It is now recognized that the portion of hormone that is weakly bound to albumin is also available to the tissues. The free hormone plus the albumin bound portion of hormones represents the “bioavailable” hormone. The measurement of SHBG can be an important indicator of a chronic or excessive androgenic activity where clinical symptoms would seem to indicate androgen in excess, but androgen levels are normal. Elevated SHBG levels can be seen in persons with androgen insensitivities, hyperthyroidism, cirrhosis of the liver and is found in patients on oral contraceptives or antiepileptic drugs. Decreased concentrations of SHBG are often seen in men with hypothyroidism and androgen replacement therapy; where women with hirsutism, virilism, polycystic ovarian syndrome (PCOS), elevated androgen levels, obesity and acromegaly will also see a decrease in SHBG levels. Pregnant women have markedly higher SHBG serum concentrations due to their increased estrogen production.

**SPECIMEN REQUIREMENTS:**

2ml serum collected in a red top tube with no additive or in a serum separator tube (gel barrier). Serum should be separated from the clot as soon as possible to avoid hemolysis. Store/transport sample at room temperature (15-30°C) for no longer than 8 hours or at 2-8°C for up 7 days. If testing is further delayed, sera should be frozen at -20°C or lower. Avoid repeat freeze-thaw cycles.

**METHOD:** Enhanced Chemiluminescence

**REFERENCES:**


**Normal Range:**

- Normal Males (age 20 - 50): 13.3 - 89.5 nmol/L
- Normal Females (age 20 - 46): 18.2 - 135.5 nmol/L
- Post-menopausal Females (age 47-91): 16.8 - 125.2 nmol/L

**Turnaround Time:** 3 days