Nordic Laboratories

PATIENT:	**Sample Report**			TEST REF:	**TST-XXXXX**
TEST NUMBER:	#######	COLLECTED:	mm/dd/yyyy	PRACTITIONER:	**Nordic Laboratories**
PATIENT NUMBER:	#######	RECEIVED:	mm/dd/yyyy	ADDRESS:	XXXXXXXXXXXX
GENDER:	Male	TESTED:	mm/dd/yyyy		
AGE	51				
DATE OF BIRTH:	mm/dd/yyyy				

TEST NAME: Male Hormonal Health

Male Hormonal Health

Blood Tests

		Reference Range
DHEA Sulfate (serum)	<30	70-310 mcg/dL

Gender	Age	Reference Range
Female	20 to 29 yrs	65-380 mcg/dL
	30 to 39 yrs	45-270 mcg/dL
	40 to 49 yrs	32-240 mcg/dL
	50 to 59 yrs	30-200 mcg/dL
	60 to 69 yrs	30-130 mcg/dL
	Over 69 yrs	30-90 mcg/dL
Male	20 to 29 yrs	280-640 mcg/dL
	30 to 39 yrs	120-520 mcg/dL
	40 to 49 yrs	95-530 mcg/dL
	50 to 59 yrs	70-310 mcg/dL
	60 to 69 yrs	42-290 mcg/dL
	Over 69 yrs	30-175 mcg/dL

Sex Hormone Binding Globulin, SHBG (serum)	15	7-100 nmol/L
Estradiol (serum)	66	

Phase	Reference Range
Follicular	20-160 pg/mL
Luteal	27-246 pg/mL
Menopausal	20-24 pg/mL
Menopausal + HRT	20-160 pg/mL
Male	<= 56 pg/mL

Free Testosterone (serum)*	4.18	

Phase	Reference Range
Follicular	0.45-3.17 pg/mL
Luteal	0.46-2.48 pg/mL
Menopausal	0.29-1.73 pg/mL
Menopausal + HRT	0.45-3.17 pg/mL
Male	8.69-54.69 pg/mL

Dihydrotestosterone, DHT (serum)	8.3	29.0-90.0 ng/dL

Gender	Reference Range
Female	3.0-28.0 ng/dL
Male	29.0-90.0 ng/dL

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TEST NAME: Male Hormonal Health

Lab Results Continued...

		Reference Range
Insulin-like Growth Factor 1, IGF-1 (serum)	71	87-215 ng/mL

Age	Reference Range
21 to 30 yrs	128-315 ng/mL
31 to 40 yrs	114-289 ng/mL
41 to 50 yrs	86-249 ng/mL
51 to 60 yrs	87-215 ng/mL
61 to 70 yrs	75-230 ng/mL
Over 70 yrs	53-205 ng/mL

Prostate Specific Antigen, PSA (serum)*	1.21	<= 2.83 ng/mL

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TEST NAME: Male Hormonal Health

Commentary

Lab Comments
****Requisition/Sample labeling discrepancy noted. Ordering physician has been contacted and authorizes testing to be performed. 02/19/08 SDG**

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with * as cleared by the U.S. Food and Drug Administration, assays are For Research Use Only.

Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

Dehydroepiandrosterone-sulfate (DHEA-S) circulates in a higher concentration than any other steroid, is derived from the adrenal gland in response to ACTH, and is the storage form for DHEA. This anabolic hormone serves as a precursor to other androgens such as androstenedione and testosterone, which may, in turn, be enzymatically converted to estrogens in peripheral tissues such as adipose and bone. DHEA-S also plays an important role in thyroid function, immune regulation, maintenance of libido and lean body mass, insulin sensitivity, and balancing the body's stress response. DHEA-S levels peak between the ages of 20 and 30 years, thereafter decreasing markedly, along with downstream androgens and estrogens. Low DHEA-S may be indicative of chronic stress (increased production of cortisol relative to DHEA) or adrenal insufficiency, and has been noted in conditions such as lupus, insulin resistance, osteoporosis, chronic illness, chronic fatigue, depression, neurodegenerative diseases, high-dose glucocorticoid therapy, and breast cancer.

Sex hormone-binding globulin (SHBG) is synthesized primarily in the liver and serves as a protein carrier for Estradiol (E2), testosterone, and dihydrotestosterone (DHT). The biologic effects of these steroid hormones (especially testosterone) are largely determined by the unbound portion. Thus, SHBG exerts a major regulatory effect on bioactivity of these steroids. Since SHBG concentrations determine bioavailability of E2, testosterone, and DHT, normal levels of SHBG are considered protective against conditions associated with excessive androgenic and estrogenic activity such as breast cancer, as well as conditions associated with deficient activity such as osteoporosis. Check individual levels of these hormones for a more thorough evaluation.

Estradiol (E2) is the most potent estrogen. E2 may arise from E1 (reversible reaction) or from testosterone in peripheral tissues such as adipose. Estrogens promote vasodilatation and vascular smooth muscle tone, collagen production, brain activity, and also inhibit bone resorption.

Free testosterone represents the fraction of testosterone that is not bound to sex hormone binding globulin (SHBG), therefore bioavailable. High levels of Free Testosterone are commonly due to supplementation with testosterone, androstenedione, or DHEA, especially in women. A lower concentration of SHBG (such as occurs with hyperinsulinemia or hypothyroidism) will lead to higher levels of Free Testosterone. Other possible causes of elevated Free Testosterone include polycystic ovarian syndrome (PCOS), adrenal tumors, testicular tumors, Cushing's disease and/or congenital adrenal hyperplasia (CAH). Low Free Testosterone is usually due to age-related decline or hypogonadal function. A higher concentration of SHBG (such as occurs with hyperthyroidism or oral estrogen replacement) can also lead to lower levels of Free Testosterone. Men may benefit from testosterone replacement, whereas women may do well with DHEA or androstenedione.

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Commentary

Low levels of DHT indicate general androgen deficiency or poor 5-alpha reductase activity. Low levels of testosterone, DHEA and androstenedione can be causative factors of reduced DHT levels. This may result in diminished sex drive and poor muscle tone.

Human growth hormone (hGH) from the pituitary promotes healthy aging via its growth-stimulating and healing effects on a variety of systems, including musculoskeletal, neurological, immune, and endocrine. Because of the pulsatile secretion of hGH, indirect serologic assessment of hGH is best accomplished by measuring insulin like growth factor-1 (IGF-1, or somatomedin C), which is released from the liver and other tissues in response to growth hormone and which mediates many of hGH's actions. Greater than 95% of total IGF-1 is bound to IGF binding proteins that limit its bioavailability. Low levels of IGF-1 suggest insufficient hGH. Low IGF-1 levels have been associated with fatigue, decreased psychological well-being, reduced exercise tolerance, bone density and lean muscle mass, diminished renal function, a tendency toward low blood sugar, and an overall diminished ability for growth and repair. Levels of growth (and IGF-1) tend to increase with measures such as exercise (especially anaerobic), sleep, reduced-carbohydrate diets, 'secretagogues' (e.g., L-arginine), and/or recombinant hGH administration.

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