

RESULTS: SALIVA HORMONE TEST

Accession #: 100035200 • Patient: Jane Smith

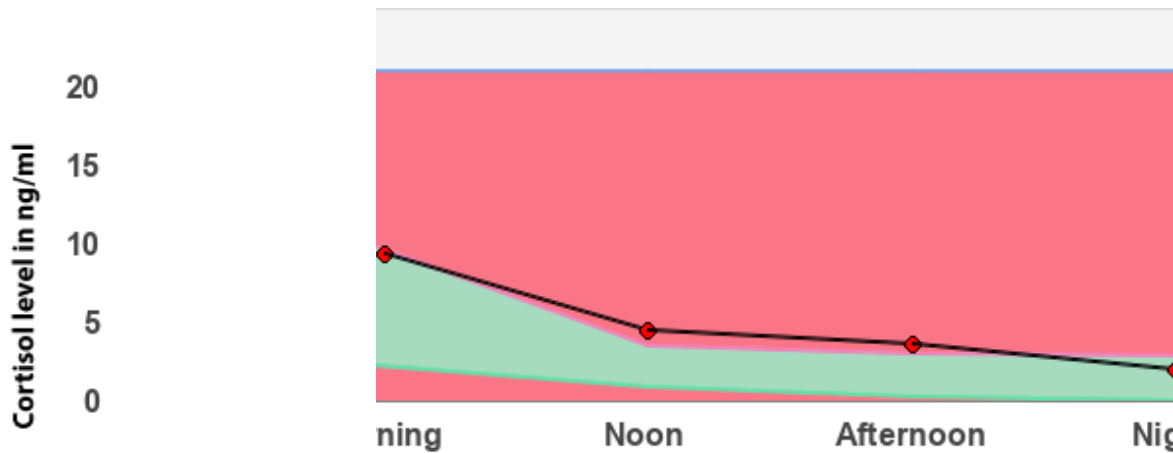
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Patient: Jane Smith
Sex: Female **Age:** 22 yr **Date of Birth:** 2001-10-04
Height: 5 ft 5 in **Weight:** 99 lbs **Waist size:** 38 in
1st day of last menses: Day 05, Month 03
Menstrual status: Regular
Hormones: No
Health Care Professional: John Smith
Address: 340 March Road #400, Ottawa, Ontario K2K 2E4

Accession #: 100035200
Sample received: 2024-01-15
Report issued: 2024-01-25
Sample collection:
 2024-01-15 08:30 AM
 2024-01-15 13:30 PM
 2024-01-15 17:00 PM
 2024-01-15 22:00 PM

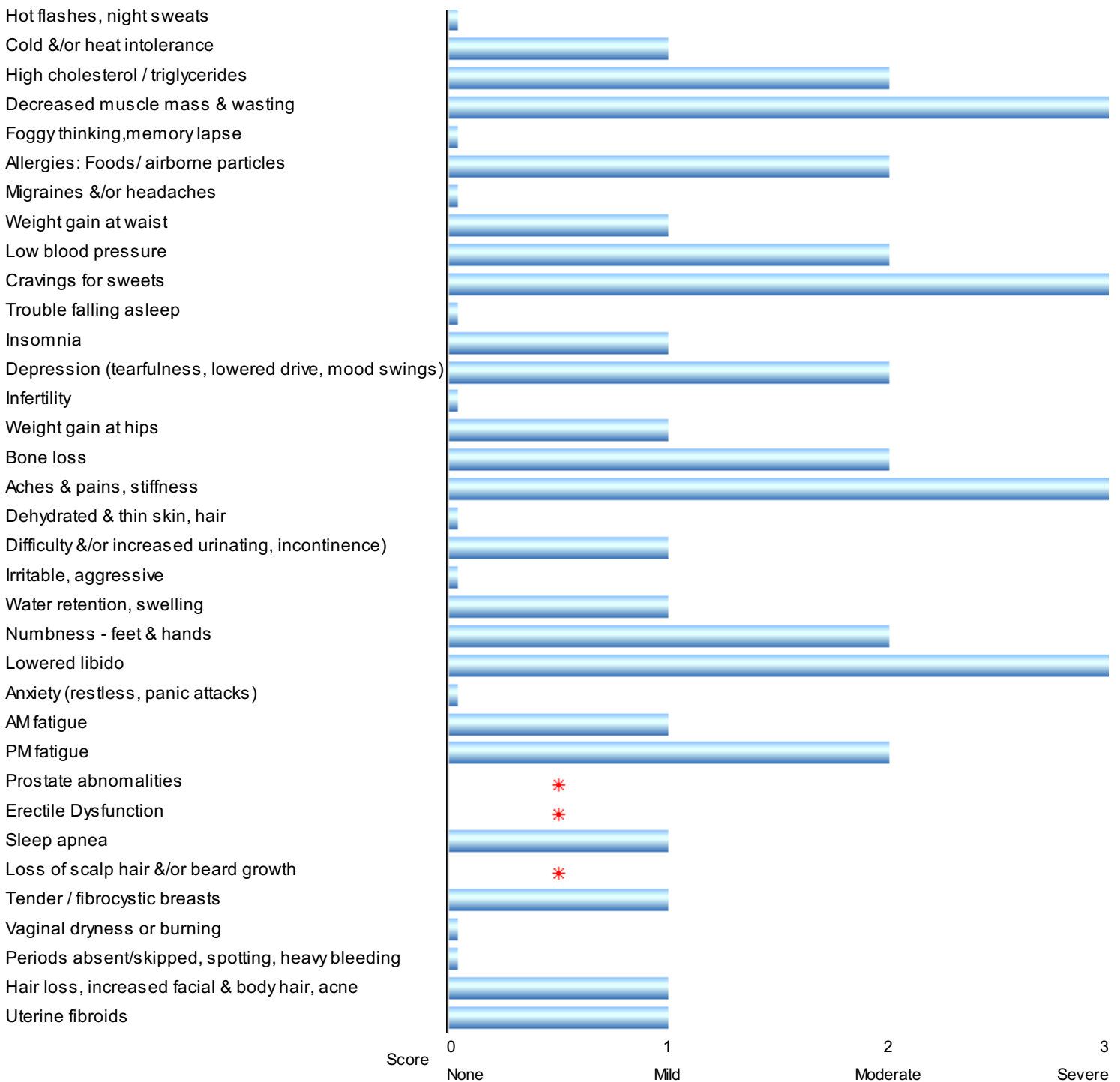
DIURNAL CORTISOL

HORMONE ng/ml	RESULT	REFERENCE RANGE	MEDIAN
Cortisol - morning	10	2.2 - 9.8	3.9
Cortisol - noon	4.5	0.9 - 3.5	0.9
Cortisol - afternoon	3.6	0.3 - 3.0	0.6
Cortisol - night	2	0.1 - 2.8	0.3
CORTISOL - TOTAL	20.1	3.5 - 19.1	5.6



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* Indicates that symptom left blank

Understanding Hormone Excess and Deficiency

The comments provided here are for educational purposes only. They should not be interpreted as being diagnostic or treatment recommendations. Those decisions are the responsibility of the health care professional. Moreover, the reference range shown in this report is derived from a normal distribution of results that encompass 95% of randomly selected individuals in a population.

IN THE PRESENT TEST

CORTISOL

The Morning cortisol level exceeds the reference range. Those experiencing acute stress, or chronic stress and work overload, will exhibit levels exceeding the normal morning range. It may also be an indication of a pronounced 'awakening response', which can increase cortisol levels by over 30%, about 30 minutes after waking. This latter response is largely genetically determined and is independent of the natural circadian variations. Waking earlier than normal can also increase this response.

The Noon cortisol level exceeds the reference range. Too much glucocorticoid can occur from an exogenous or endogenous source. The exogenous cause is most often related to the taking of some form of 'steroid' medication. The endogenous cause is related to some form of adrenal hyperplasia, a benign tumour of the adrenal gland, or a pituitary adenoma (Cushing's Disease or Syndrome). Long-term treatment with steroids can also cause symptoms and problems similar to Cushing's Syndrome.

The Afternoon cortisol level exceeds the reference range. Too much glucocorticoid can occur from an exogenous or endogenous source.

The Nighttime cortisol level lies inside the reference range, and indicates that adrenal glands are functioning normally within the circadian cycle. It is a good indicator of a normal baseline level of adrenal activity.

General Discussion

CORTISOL

About Cortisol: Cortisol is produced by the adrenal glands, which are controlled by parts of the brain called the hypothalamus and pituitary. Cortisol plays an important role in breaking down glycogen to glucose in liver and muscle tissue. It mobilizes glucose, so as to maintain normal blood sugar levels, the primary energy source for the brain. Cortisol levels are highest in the early morning (approximately 8 am) and reach the lowest level about midnight to 4 am, or three to five hours after the onset of sleep. Diurnal cycles of cortisol levels are found in human saliva. Cortisol production comes in response to daily stress, as well as emotional upset, infections and surgery. It prevents the release of substances in the body that cause inflammation. It is used to treat conditions resulting from over activity of the B-cell-mediated antibody response. Examples include inflammatory and rheumatoid diseases, as well as allergies. Low-potency hydrocortisone, available as a non-prescription medicine in some countries, is used to treat skin problems such as rashes, and eczema^{1,2,3}.

Low Cortisol, especially if it remains so throughout the day, may indicate **Adrenal Exhaustion**, which is caused by stress, such as sleep deprivation, emotional stress, poor diet, nutrient deficiencies, and/or synthetic glucocorticoid medications that suppress cortisol production. Chronic stress depletes cortisol and is associated with symptoms of morning and evening fatigue, aches and pains, fibromyalgia, cold body temperature, decreased stamina, slow pulse rate, low blood sugar (sugar craving) and low blood pressure. In addition one often encounters increased allergies (immune dysfunction), and sensitivity to chemicals. Symptoms of thyroid deficiency can also be due to low cortisol levels. Exercise, more adequate sleep, a diet with adequate protein, 'bio-identical' progesterone, adrenal extracts and nutritional supplements are often helpful in correcting low cortisol.

High Cortisol. Although normal cortisol levels are essential for life, chronically elevated levels can be very detrimental. Increased cortisol production by the adrenals is a normal response to routine stress, but when stress is chronic and cortisol output remains high over a prolonged period (months/years), break-down of normal tissues (muscle wasting, thinning of skin, bone loss) and immune suppression can result. Common symptoms of chronic high cortisol include sleep disturbances, fatigue, depression and weight gain in the waist and anxiety. Stress and persistently elevated cortisol levels can contribute to premature aging and chronic illness.

References

1. Fukaya M et al. Topical steroid addiction in atopic dermatitis. *Drug, Healthcare and Patient Safety* 2014; 6: 131-138.
2. Nieman, LK. Recent Updates on the Diagnosis and Management of Cushing's Syndrome. *Endocrinol Metab* 2018; 33:139-146.
3. Crona J, Beuschlein F, Pacak K and Skogseid B. Advances in adrenal tumors 2018. *Endocrine-Related Cancer* 2018; 25: R405-R420.