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Advancing the Science of Wellness
Rocky Mountain Analytical

Collection Date: 01-Sep-2013
Collection Time(s): 9:00 am
Sample Received: 10-September-2013
Reported On: 26-November-2013

Urine Thyroid Assessment

Accession Number : 333333

Provider:

Client:
Jane Smith

Phone:

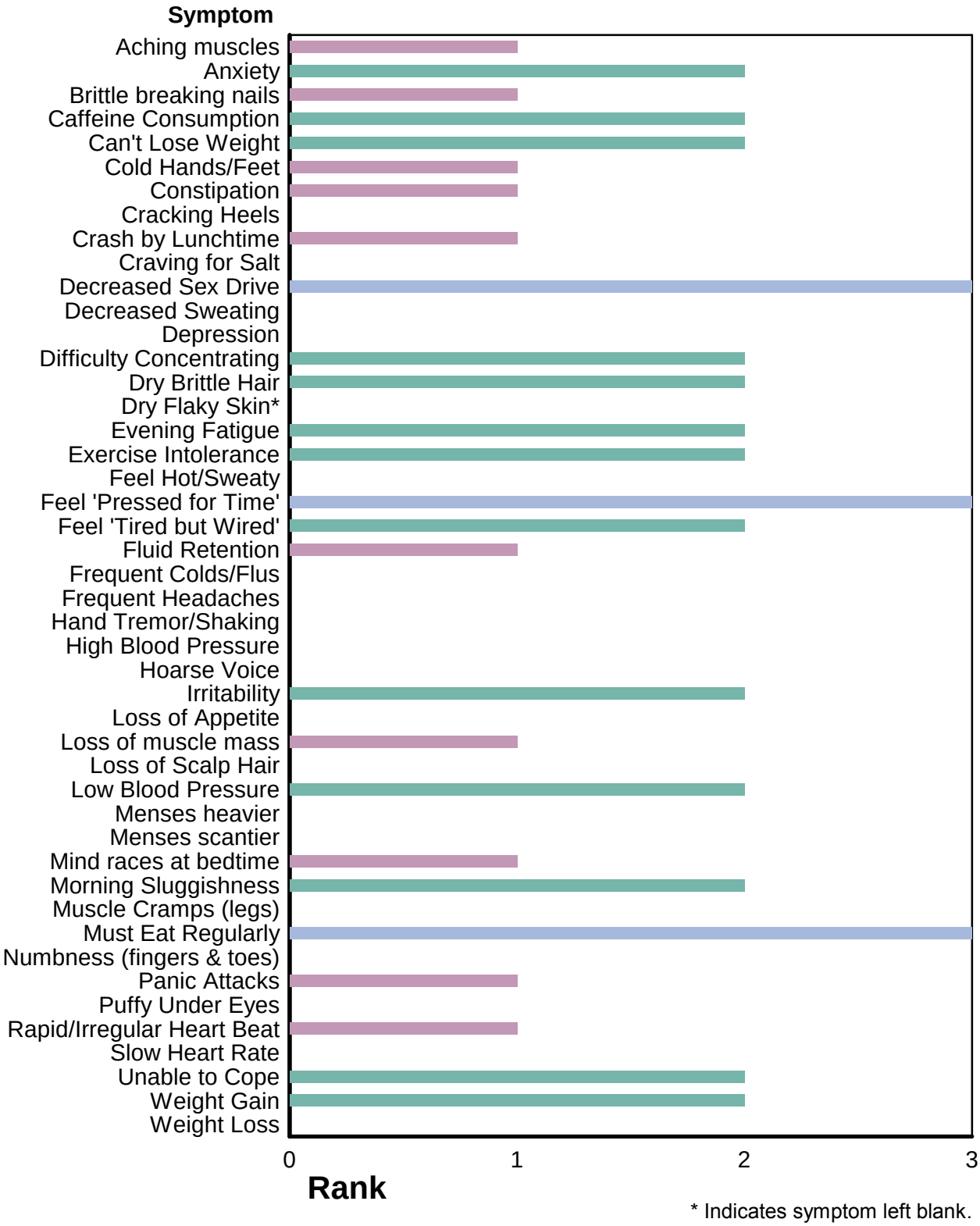
Age: 51
DOB: 01-Jul-1962
Gender: F
Status:

Phone:
Fax:

Hormone	Status	Result	Range	Units	Range Applied
Triiodothyronine (T3)	High end of range	1,100	470 - 1,800	ng/24 hr	T3 Adult range-24 hour specimen
Thyroxine (T4)	Within range	1,000	380 - 3,200	ng/24 hr	T4 Adult range-24 hour specimen
Selenium	High end of range	160	26 - 260	ug/24 hr	Selenium Adult range-24 hour specimen
Urine volume	Above range	3,000	600 - 3,000	mL	Urine Volume Adult range-24 hour specime
Creatinine	Within range	1.3	0.50 - 2.0	g/24 hr	Creatinine -24 hour specimen

Hormone Therapies	Last Used
Synthroid (0.025 mg)	1 day, 1 hrs

George Gillson MD, PhD
Medical Director



* Indicates symptom left blank.

The 24 hour urine volume is above the high end of the range (3000 ml). Bear in mind that the urine volume is primarily a function of fluid intake. The main concern with 24 hour urine volumes in excess of 3000 ml would be excessive dilution of the sample. This is unlikely to be a problem unless the volume is above 4000 ml.

The Urinary Thyroid Assessment does not replace serum testing as a means of diagnosing thyroid illness; it is meant to assist clinicians in the evaluation of patients whose clinical presentation is not readily explainable by measurement of serum thyroid parameters alone.

Many patients who have a "normal" TSH still have symptoms commonly ascribed to low tissue activity of thyroid hormone, such as hypometabolic symptoms. In part, this is because some laboratories still have not lowered the upper range of normal for serum TSH from 5.0 to 3.0. The new lower limit was recommended in 2003, by the American Association of Clinical Endocrinologists, and this change was also endorsed by the National Academy of Clinical Biochemistry. In fact, many experts now recommend that a TSH above 2.5 should be treated. Confusion also arises because TSH is widely regarded as the "gold standard" screening test for thyroid disease, whereas in fact, the TSH test was developed as a means to monitor thyroid hormone therapy. The serum TSH level reflects conversion of T4 to T3 within the brain, not the peripheral tissues. Both the brain deiodinase enzyme (which converts T4 to T3) and the brain T3 receptor, are different from the deiodinase enzymes and T3 receptors found in other tissues. Hence the TSH level may not adequately reflect whether or not peripheral tissues have adequate amounts of T3, in all cases.

Various studies published since 2001 indicate that a substantial percentage of patients given T4 with dose regulation according to serum TSH measurements (>50% in some studies) continued to experience significant hypometabolic symptoms, as well as ongoing depression and anxiety (Clyde P et al. JAMA 2003;290:2952-2958, Saravanan P et al. Clin Endocrinol (Oxf) 2002;57:577-585, Sawka A et al. J Clin Endocrinol Metab 2003;88:4551-4555, Walsh J et al. J Clin Endocrinol Metab 2003;88:4543-4550). In other words, the "gold standard" serum TSH measurement, does not appear to be an adequate way to monitor thyroid hormone therapy in some patients supplementing only with T4. The serum TSH level reflects conversion of T4 to T3 within the brain, not the peripheral tissues. Both the brain deiodinase enzyme (which converts T4 to T3) and the brain T3 receptor, are different from the deiodinase enzymes and T3 receptors found in other tissues. Hence the TSH level may not adequately reflect whether or not peripheral tissues have adequate amounts of T3, in all cases, when T4 is the only thyroid hormone being given.

A selenium result lying at or above the high end of the endogenous range may reflect supplementation with selenium. In general it is probably a good idea to keep the urinary selenium within the endogenous range, even with supplementation, as selenium has a fairly narrow therapeutic window. Doses of up to 400 micrograms per day are usually well-tolerated, but adverse effects have been reported for doses as low as 600 to 800 micrograms/day.

Symptoms of low cortisol/adrenal fatigue are present. These may include evening fatigue, difficulty getting going in the morning, excessive use of caffeine, depression, irritability, poor exercise tolerance, feeling cold/cold hands and feet, frequent upper respiratory infections, inability to sustain blood sugar leading to a need to eat frequently, and heart palpitations. Note that not all of these symptoms are present in every individual with adrenal fatigue. Consideration might be given to additional assessment of adrenal function via 4 point cortisol testing in saliva.

George Gillson MD, PhD
Medical Director

Note: The College of Physicians and Surgeons of Alberta considers saliva hormone testing and some forms of bio-identical hormone replacement to be complementary medicine. The interpretation comments have not been evaluated or approved by any regulatory body. Commentary is provided to clinicians for educational purposes and should not be interpreted as diagnostic or treatment recommendations. *General treatment suggestions can be found in the Rocky Mountain Analytical Resource Binder.