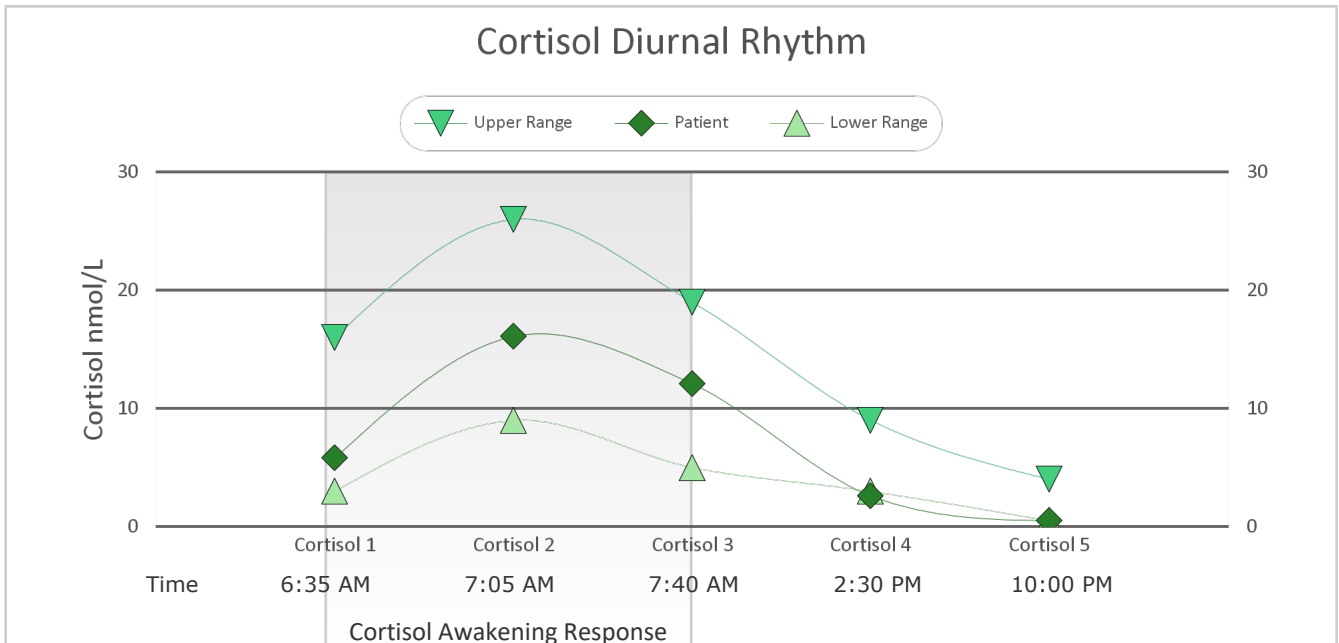
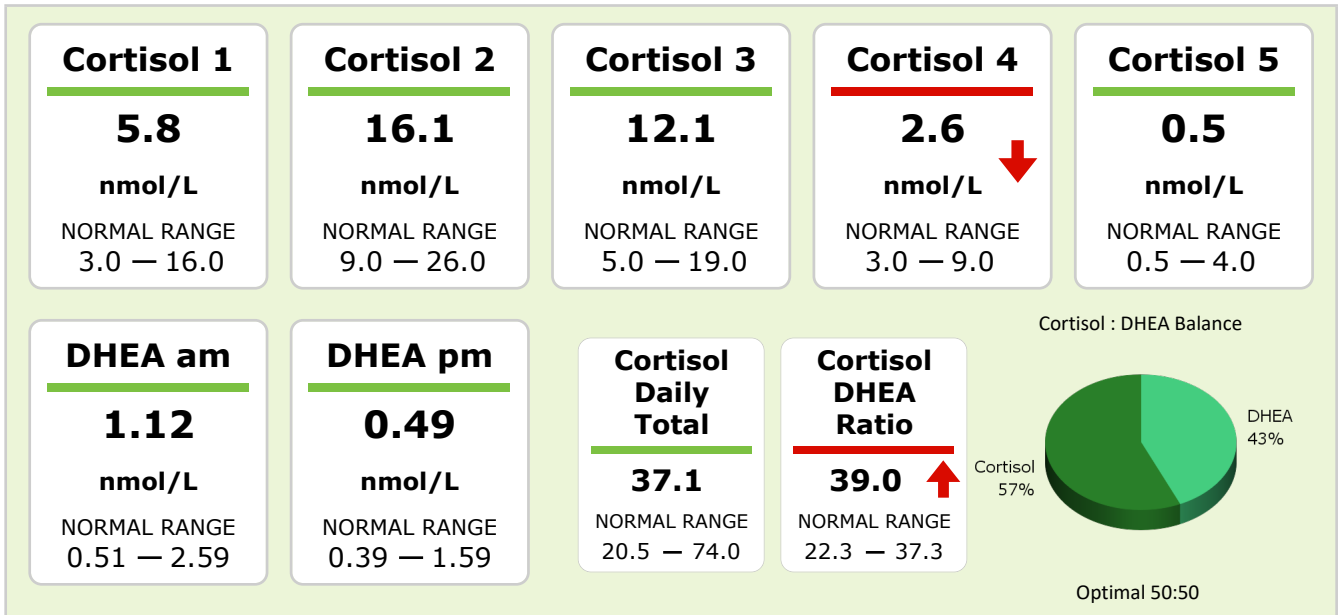


PATIENT DETAILS				CLINIC DETAILS	
PATIENT NAME:				Healthpath 11, Breer Street LONDON, SW6 3HE	
PATIENT ID:		SAMPLE DATE:			
PATIENT DOB:		SAMPLE TIME:	06:35:00		
ORDER ID:	I29264	RECEIVED DATE:			
TEST ID:	127219	REPORT DATE:			

ADRENAL FUNCTION PROFILE


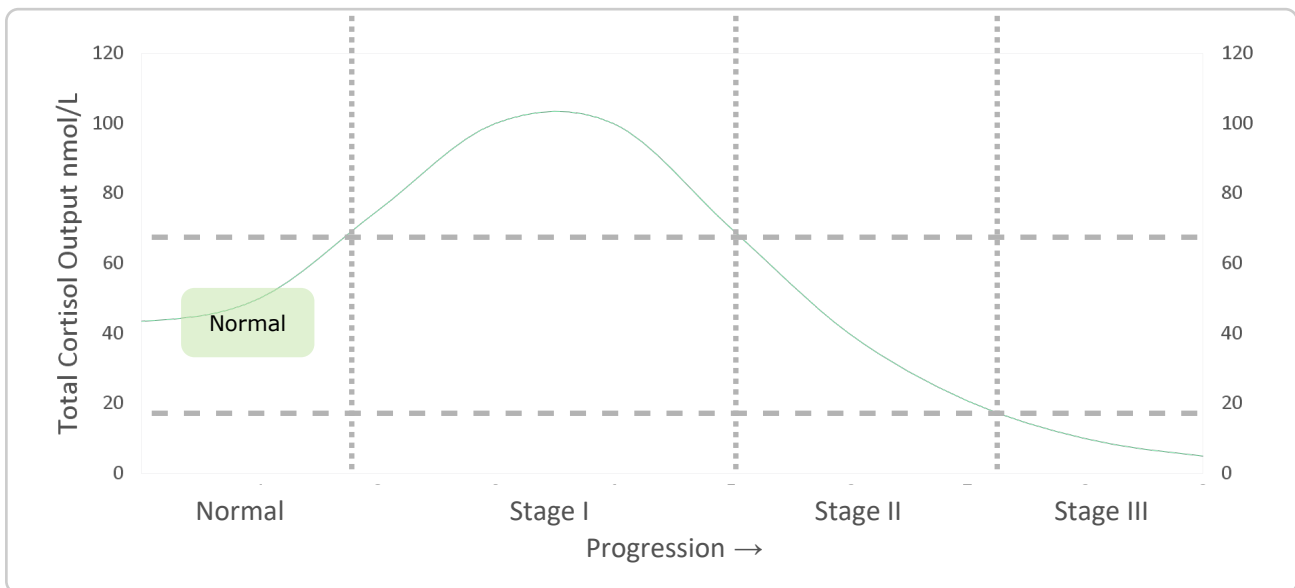
Laboratory Comment

Method: ELISA Test Type: Saliva Report Printed: 13/10/2020 13:09
 This test was performed using CE marked analysis kits approved for diagnostic use.

STRESS EVALUATION

In the hypothalamic-pituitary-adrenal control loop (HPA axis), an increase in ACTH output from the pituitary gland stimulates the adrenal glands to release stress hormones including cortisol. The level of cortisol is regulated through the HPA negative feedback loop. Continued demand for increased cortisol production necessitates ongoing ACTH release by the pituitary, but the adrenals can eventually experience difficulty in meeting the demand.

This diagram illustrates the common pattern of cortisol through the stages of adrenal dysfunction. The total cortisol sum is shown to rise then fall as the stages of dysfunction progress left to right. ***NB. This should not be confused with Addison's disease.***



Adrenal Response: Normal

Normal or optimal adrenal function is achieved when both cortisol and DHEA levels are within the optimal range and the ratio of cortisol to DHEA is in proper balance. Measurement of this ratio is the best way to both evaluate adrenal function and determine the effects that stress is having on overall health. When cortisol and DHEA are in the correct ratio, the HPA axis is functioning optimally.

Cortisol

Cortisol is an important component of the stress response, where it protects the body through its role in enhancing vascular activity, suspending nonessential functions, inhibiting the inflammatory process, suppressing the immune system, inhibiting the actions of insulin, and increasing energy availability. Cortisol is the main glucocorticoid in humans and is produced in the zona fasciculata of the adrenal cortex. 90 % of the circulating cortisol are bound to carrier proteins and only 1–3 % are unbound. Only the latter part represents the active form of cortisol. In saliva only, this free cortisol fraction is present. The level of free cortisol regulates mainly its secretion in the adrenal cortex in a negative feedback mechanism via CRH (corticotrophin releasing hormone) in the hypothalamic region and the ACTH in the pituitary gland, but it is also affected by different situations above all by stress. In humans there is a physiological fluctuation of cortisol achieving the highest level in the morning and the lowest during midnight. This fluctuation of cortisol plasma level is reflected in saliva normally with a peak within the first 60 minutes after wake up. Because of the diurnal fluctuation of cortisol levels, it is necessary to take several samples for an individual cortisol profile.

Cortisol Awakening Response

Cortisol 1 = 5.8 Cortisol 2 = 16.1 Cortisol 3 = 12.1 (nmol/L)

In this profile, Sample 2 (Post awakening) cortisol level is within the reference range. Cortisol levels are generally high in the morning as we wake from a prolonged period of sleep, with an increase of up to 50% in the 20 to 30 minutes after waking. This is known as the 'cortisol awakening response'. This peak morning cortisol maybe a useful indicator of adrenal gland function. Morning cortisol levels within reference range are suggestive of normal adrenal function with regard to peak circadian activity.

Afternoon Response

Cortisol 4 = 2.6 L (nmol/L)

Sample 4 cortisol level is below the reference range. Afternoon cortisol levels may be a good indication of the adrenal glands' ability to help regulate blood sugar, since they represent a postprandial sample. Low afternoon cortisol can be a sign of adrenal fatigue following a raised morning cortisol, resulting in an afternoon slump.

Prior to Sleep Levels

Cortisol 5 = 0.5 (nmol/L)

Sample 5 cortisol level is within the reference range. Late-night cortisol levels may be a good indication of baseline adrenal gland function since they typically represent the lowest level during the day. Normal late-night cortisol levels suggest normal adrenal function with regard to baseline circadian activity.

DHEA

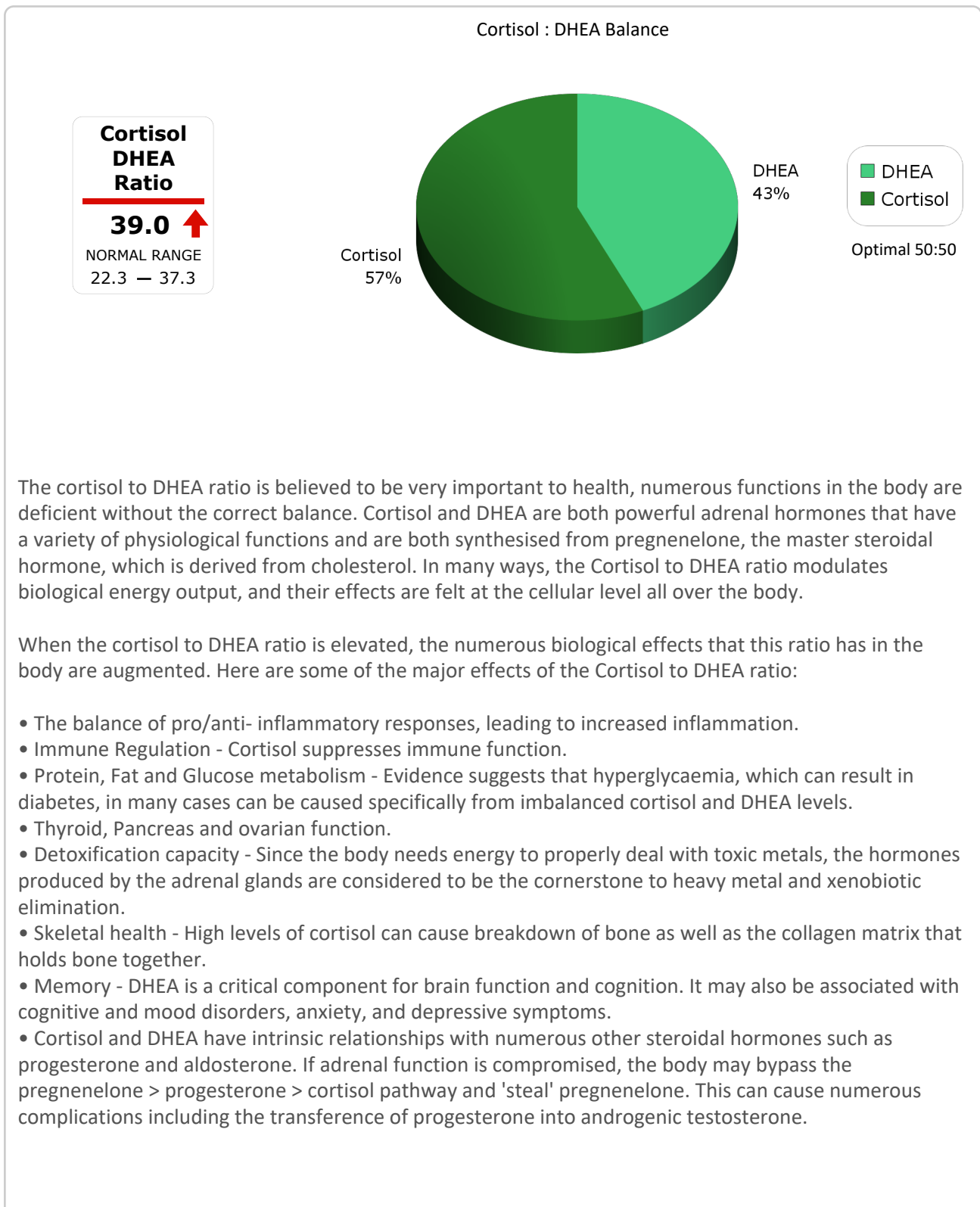
DHEA (Dehydroepiandrosterone) and its sulphate ester DHEA-S, as C-19 steroid hormones they represent the most important adrenal androgens. They are almost exclusively (96 %) produced in the adrenal cortex, additionally, they are also produced in the gonads and in the brain. Due to quantity produced, they can be considered as the main products of human steroid biosynthesis. DHEA-S circulates in blood in 20-fold higher concentrations than any other hormone. The concentration of DHEA-S exceeds the DHEA levels by approximately 300 to 500 times. It serves as a kind of repository form of DHEA. The conversion of DHEA-S into DHEA takes place very quickly and in almost all body tissues as the corresponding enzymes are available ubiquitously. While the hydrophilic DHEA-S represents the inactive pre-hormone, the lipophilic DHEA can be reabsorbed by the cells of the peripheral tissues, converted into androgens and oestrogen's and then released into circulation. Only free, non-protein-bound, DHEA can enter the cells and be converted. This is also the case for saliva, where only the free active hormone is found. Therefore, the concentration of biologically active DHEA can be measured easily and directly in saliva. The concentration of DHEA in saliva is only around 3.5% of those in sera. The normal DHEA concentration changes significantly with age: In adults, peak concentrations of DHEA within an individual are expected to be achieved between the 25th and the 39th year, followed by a slow but continuous decline until a low value around the 50th year. This age-related decline of DHEA secretion is known as "Adrenopause" and is the result of a reduction of the production of DHEA in the adrenal cortex. Due to the ubiquitous occurrence of DHEA, its determination is useful in many fields of medicine and in research. DHEA is an important stress marker in the fields of psychology and sports medicine.

DHEA am = 1.115 DHEA pm = 0.491 (nmol/L)

DHEA is within the reference range. Proper levels contribute to the ideal metabolism of proteins, carbohydrates and fats, including efficient glycaemic control.

CORTISOL : DHEA RATIO

When cortisol and DHEA are in the correct ratio—determinable by lab testing—the negative effects of high cortisol/low DHEA are avoided.



SYMPTOMS OF HIGH CORTISOL LEVELS

Wired or fatigued
 High blood pressure
 Hyperglycaemia
 Worsening memory and concentration
 Difficulty sleeping (insomnia)
 Decreased sex drive
 Erectile dysfunction
 Weight gain and obesity
 Weakened immune response
 Increased gut permeability (leaky gut)
 Food intolerance

SYMPTOMS OF ADRENAL INSUFFICIENCY (LOW CORTISOL LEVELS)

Fatigue
 Worsening memory and concentration
 Difficulty sleeping (insomnia)
 Sugar and salt cravings
 Decreased sex drive
 Depressed mood
 Weight gain
 Bone and muscle loss
 Anxiety
 Irritability

Adrenal Glands and Their Essential Bodily Functions

