



Introduction to Salivary Hormones

As hormones play an important role in maintaining health, the assessment of hormone levels can help identify the cause of many health related conditions. In both men and women adequate levels of a number of hormones are necessary for optimal health and wellbeing.

The family of sex hormones, which includes oestrogens – Oestrone (E1), Oestradiol (E2), Oestriol (E3), progesterone, testosterone, DHEA-S and cortisol, support a wide range of essential physiological functions. Variation in these hormones plays a large role in the changes seen in life cycle events such as pregnancy, menopause and ageing.

Baseline measurement of hormone levels in saliva provides an accurate assessment of menstrual irregularities for younger women, climacteric changes for the peri and postmenopausal women and andropause changes in men.

The connection between sex hormones and thyroid function, adrenal activity and liver detoxification may also be evaluated with hormone status in both men and women of all ages.

Many factors contribute to altered hormone levels. These include environmental factors, such as chemical exposure and pesticides, lifestyle factors including smoking, alcohol, and lack of exercise, poor diet and specific conditions such as infertility, endometriosis, and enlarged prostate.

Saliva testing is non-invasive and designed so that the patient may collect the specimen(s) in the privacy of their own home. Patients are sent a test kit with easy to follow instructions for saliva collection.

Hormones Tested

- Oestrone (E1)
- Oestradiol (E2)
- Oestriol (E3)
- Progesterone (P4)
- Testosterone (TT)
- DHEA-S
- Cortisol
- Melatonin

Oestrogens

Oestrogens are a group of multiple hormones including E1, E2, and E3. In women, oestrogens are secreted directly by the ovaries or made in adipose cells by conversion from DHEA-S and testosterone. In men, oestrogen hormones are made to a lesser extent in the testes.

The pattern of circulating oestrogens in the human body is:

Oestrone (E1)	10-20%
Oestradiol (E2)	10-20%
Oestriol (E3)	60-80%

Oestrone (E1)

- Readily converts to oestradiol
- Levels increase following menopause, giving the body some oestrogen benefits

Oestrone (E1) is produced primarily from the androstenedione in the testes in men, the ovaries in women and the adrenal glands in both sexes. There is conversion back and forth between E1 and E2. After menopause E1 levels increase, possibly due to increased conversion of androstenedione to E1, particularly in overweight people where there is more adipose tissue. E1 has less oestrogenic activity than E2.

Oestradiol (E2)

- Readily converts to E1
- Promotes the growth of endometrial and breast tissue
- Responsible for development of secondary sex characteristics
- Increases fat stores
- Required for maturation of long bones
- Improves memory
- Relieves menopausal symptoms
- Protection against heart disease

Oestriol (E3)

- Produced almost exclusively during pregnancy
- Topically may relieve postmenopausal vaginal atrophy and urinary incontinence
- E3 is less potent than E1 and E2

Progesterone (P4)

- Maintains uterus during pregnancy
- Prepares breasts for lactation
- Decreases oestrogen receptor synthesis
- Improves oestrogen receptor sensitivity
- Promotes cell differentiation
- Enhances mood and has a calming effect
- Reduces symptoms of premenstrual syndrome (PMS)

Testosterone (TT)

- Builds muscle and promotes muscle tone
- Increases libido
- Helps strengthen bones
- Reduces depression
- Protects against heart disease

DHEA-S

- Helps protect against heart disease
- Enhances immune system
- May increase energy levels, libido and memory
- Protects against the effects of stress

Cortisol

- Assists in stress response and coping with trauma, infection and environmental extremes
- Increases energy and metabolism
- Helps regulate blood pressure
- Enhances the integrity of blood vessels
- Reduces allergic and inflammatory response

Melatonin

- Regulates sleep
- Potent antioxidant properties

Advantages of Saliva Testing

- Saliva reflects the free, bio-available hormone levels (unlike blood which measures total levels)
- Baseline hormone levels can be assessed and bio-identical hormone replacement therapy can be easily monitored and adjusted
- Testing is suitable for both men and women
- Simple, painless, non-invasive, economical and can be collected at home
- Specimens are sent directly to the laboratory without special handling
- Multiple saliva collections can be taken over a day or a number of weeks
- Hormones are stable in saliva at room temperature