



# Menopause



sample type: **SALIVA**

**Menopause** is a noninvasive **salivary** assay that examines three specimens for levels of  $\beta$ -estradiol, estrone, estriol, progesterone, and testosterone. Results can be used to identify imbalances contributing to menopausal symptoms as well as various systemic disorders. Identification of hormonal imbalances enables the practitioner to customize an HRT program.

Following menopause, a marked decrease in estrogen production can result in distinct changes in female physiology. **Dramatic reductions in hormone levels or imbalances between estrogen, progesterone and testosterone can lead to:**

- Hot flashes
- Impaired memory
- Vaginitis
- Altered lipid metabolism
- Dyspareunia
- Accelerated aging of skin

By the time a woman reaches menopause, her total estrogen production has typically declined by 70-80% and her androgen production by 50%. **Reduced hormonal levels are associated with increased risk for osteoporosis and cardiovascular disease.** In addition, potential functional impairments include:

- Immune regulation
- Sex drive
- Mood control
- Cognition
- Glycemic control

Establishing baseline measurements of estrogens, progesterone and testosterone is critical in determining the need for hormone replacement therapy (HRT). Hormone levels may be normal, indicating that HRT is not needed. Reference ranges are based on non-supplementing post-menopausal women. Excess levels of estradiol, estrone, or testosterone may signify a higher risk of breast or endometrial cancer.

### *Procedure:*

**Menopause** examines 3 saliva samples (collected every other day) for levels of estradiol, estrone and progesterone. Measurements for all samples are reported, as well as an average value for each hormone. A single measurement of salivary testosterone is also provided. Research has established salivary hormone assessment to be reliable and clinically useful. Salivary assessment offers the distinct advantage of reflecting the free, bioavailable fraction of steroid hormones.

The comprehensive version of **Menopause** includes **circadian analyses of cortisol and melatonin, and an assay of DHEA.** Since proper functioning of the adrenal glands and the HPA axis is key in maintaining adequate hormone levels in the postmenopausal woman, this combination of markers is particularly recommended. For the perimenopausal woman who has had at least one menstrual cycle within the last year, the **Rhythm** profile should be considered.

- **Analytes:**  
estradiol  
estrone  
estriol,  
progesterone  
testosterone

- **Specimen Requirement:**  
3 (3ml) saliva samples collected over a 5-day period

- **Before Patient Takes this Test:**
  - Inform practitioner about all medication, oral contraceptive, and hormone supplement use
  - Do not eat, brush or floss teeth, use mouthwash, or chew gum (1 hour before)
  - Wash hands before collection
  - See instructions inside test kit for details

# Menopause



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Asheville, NC 28801  
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Patient: **SAMPLE PATIENT**      **Order Number:**  
 Age: 40      Completed: January 11, 2006  
 Sex: F      Received: January 11, 2006  
 MRN:      Collected: January 11, 2006

This Test reveals important information about:

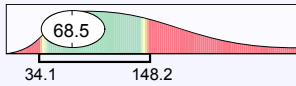
- **Imbalances of estradiol, estrone, estriol, progesterone, and testosterone that can trigger menopause-related symptoms** such as hot flashes, vaginitis, dyspareunia, impaired memory, altered lipid metabolism, diminished sex drive, and accelerated aging of the skin
- **Low or high sex steroid levels** linked to increased fat deposits and a higher risk of cardiovascular disease, breast and endometrial cancers, and other degenerative conditions
- **Baseline levels of unbound, bioavailable sex hormones** to assess clinical need for hormone replacement therapy

## Salivary Hormone Results

Sample #	Estrone (E1) (pmol/L)	Estradiol (E2) (pmol/L)	Estriol (E3) (pmol/L)	Progesterone (pmol/L)
1	8.6	6.30	112.0	722
2	12.2	4.80	109.0	588
3	6.1	9.32	89.0	618
Reference Range	4.7-18.9	3.66-9.38	<=132.9	163-669

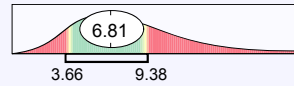
### Testosterone

Ref Range  
pmol/L



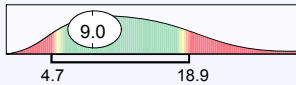
### Average Estradiol

Ref Range  
pmol/L



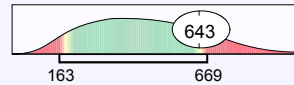
### Average Estrone

Ref Range  
pmol/L



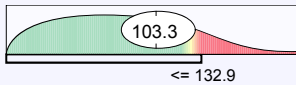
### Average Progesterone

Ref Range  
pmol/L



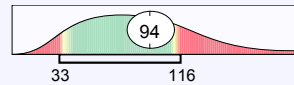
### Average Estriol

Ref Range  
pmol/L



### P/E2 Ratio

Ref Range  
Ratio



Histograms on this report are not based on data from reference populations and should be used for illustrative purposes only.

This test has been developed and its performance characteristics determined by GSDL, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.

## Commentary

### Introduction

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.

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More detailed publications with references are also available: [www.GDX.net](http://www.GDX.net)