# DEMO DEMO

Name: DEMO DEMO
Date of Birth: 05-06-1974
Biological Sex: Female
Age: 51
Height: 66 inches
Weight: 140 lbs
Fasting:

Telephone: 000-000-0000
Street Address:
Email:

**FINAL REPORT**

**Accession ID: 2664704445**

## Provider Information

Practice Name: DEMO CLIENT, MD
Provider Name: DEMO CLIENT, MD
Phlebotomist: 0

Telephone: 000-000-0000
Address: 3521 Leonard Ct, Santa Clara, CA 95054

## Report Information

Current Result | Previous Result | In Control | Moderate | Risk

## Specimen Information

| Sample Type | Collection Time | Received Time | Report | Final Report Date |
|---|---|---|---|---|
| Urine 1st Morning | 2025-01-15 07:58 (PST) | 2025-01-17 14:02 (PST) | Hormone Zoomer - P2 | 2024-12-30 14:35 (PST) |
| Urine 2nd Morning | 2025-01-15 09:35 (PST) | 2025-01-17 14:02 (PST) | Hormone Zoomer - P2 | 2024-12-30 14:35 (PST) |
| Urine Evening | 2025-01-15 18:40 (PST) | 2025-01-17 14:02 (PST) | Hormone Zoomer - P2 | 2024-12-30 14:35 (PST) |
| Urine Night | 2025-01-15 22:59 (PST) | 2025-01-17 14:02 (PST) | Hormone Zoomer - P2 | 2024-12-30 14:35 (PST) |
| Saliva Waking | 2024-03-21 01:00 (PST) | 2024-03-22 15:42 (PST) | CAR Add-On - P2 | 2024-12-30 14:35 (PST) |
| Saliva Waking +30 | 2024-03-21 01:00 (PST) | 2024-03-22 15:42 (PST) | CAR Add-On - P2 | 2024-12-30 14:35 (PST) |
| Saliva Waking +60 | 2024-03-21 01:00 (PST) | 2024-03-22 15:42 (PST) | CAR Add-On - P2 | 2024-12-30 14:35 (PST) |
| Saliva Evening | 2024-03-21 01:00 (PST) | 2024-03-22 15:42 (PST) | CAR Add-On - P2 | 2024-12-30 14:35 (PST) |
| Saliva Night | 2024-03-21 01:00 (PST) | 2024-03-22 15:42 (PST) | CAR Add-On - P2 | 2024-12-30 14:35 (PST) |
| Saliva Insomnia | 2024-03-21 01:00 (PST) | 2024-03-22 15:42 (PST) | CAR Add-On - P2 | 2024-12-30 14:35 (PST) |



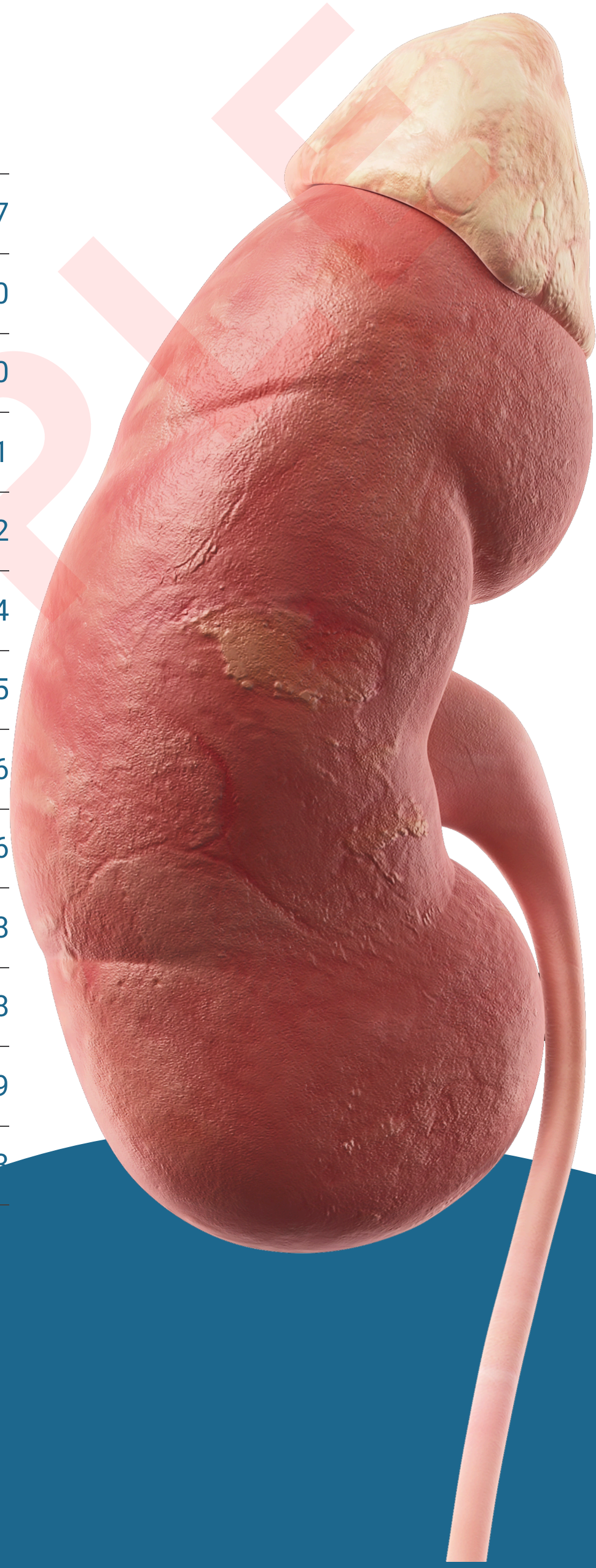
VibrantWellness
3521 Leonard Ct, Santa Clara, CA 95054
1-866-364-0963 | support@vibrant-america.com | www.vibrant-wellness.com

VibrantWellness

# Hormone Zoomer

## Your Hormone Health Report





# Hormone Zoomer

## INTRODUCTION

Vibrant Wellness is pleased to present to you 'Hormone Zoomer', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.
The Vibrant Hormone Zoomer is a test to measure urinary hormones including estrogens, androgens, progestogens, endocrine disruptors, bone health and oxidative stress. The panel is designed to give a complete picture of an individual's levels of hormones and metabolites along with toxins that can affect hormone functionality and risk markers for bone health metabolites in urine.

## Methodology:

The Vibrant Hormone Zoomer Panel uses Liquid Chromatography Tandem Mass Spectrometry methodology (LC-MS/MS) for quantitative detection of Cortisol and Cortisone metabolites, Melatonin, Endocrine Disruptors, Bone Health, Creatinine and Oxidative Stress markers and Gas Chromatography Tandem Mass Spectrometry (GC-MS/MS) for quantitative detection of Estrogens, Progesterone and Androgen metabolites in urine samples.

## Interpretation of Report:

The report begins with the list of all adrenal hormones and illustrations, followed by the sex hormones along with corresponding illustrations. The hormones section is followed by endocrine disruptors and bone health metabolites. Reference ranges for each analyte have been established using a cohort of gender and menstrual phase matched 1000 apparently healthy individuals. Additionally, the previous value (if available) is also indicated to help check for improvements every time the test is ordered. For hormones section and bone health metabolites, classification of Red indicates a result that is outside the reference range and the classification of Green denotes a result that is within the reference range. The level of the endocrine disruptors is shown with three shades of color – Green, Yellow and Red. The result in green corresponds to 0th to 75th percentile indicates mild exposure to the respective toxin. The result in yellow corresponds to 75th to 95th percentile indicates moderate exposure to the respective toxin whereas the result in red corresponding to greater than 95th percentile indicates high exposure to the respective toxin. All contents provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information should be made in consultation with the clinical provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Urinary Hormones panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to these terms, you should not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are meant to be lifestyle choices for potential risk mitigation. Please consult your healthcare provider for medication, treatment, diet, exercise, or lifestyle management as appropriate. This product is not intended to diagnose, treat, or cure any disease or condition.

### Please note:

Please Note: It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your healthcare provider before making any changes. The Vibrant America Clinical Support team can only provide basic and generalized interpretation of hormone biomarkers and pathways. It is the Vibrant ordering provider's responsibility to provide comprehensive interpretation and individualized treatment recommendations for hormone lab test results.

# Hormone Zoomer - Summary

## Questionnaire Data

### BACKGROUND

| | | | |
|---|---|---|---|
| **Date of Birth** | 1967-06-06 | **Reproductive health status** | Postmenopausal |
| **Biological sex** | Female | **Regular menstral cycles** | NO |
| **Last menstrual period** | N/A | **Had a hysterectomy** | NO |

### BONE HEALTH AND TOXIN EXPOSURE

| | | | |
|---|---|---|---|
| **Bone density scan** | YES | **If yes, scan result** | Osteoporosis |
| **Experienced any fractures** | NO | **Exposed to toxic chemicals** | No |

### SYMPTOM HISTORY

| | | | | | |
|---|---|---|---|---|---|
| **Hot flashes/night sweats** | None | **Sleep disturbances** | None | **Loss of muscle mass** | Moderate |
| **Mood swings/irritability** | None | **Joint pain** | Moderate | **Difficulty concentrating** | None |
| **Fatigue** | Severe | **Loss of libido** | None | **Urinary problems** | None |
| **Vaginal dryness** | None | | | | |

### MEDICAL BACKGROUND

#### MEDICAL HISTORY

| | |
|---|---|
| **Breast cancer** | NO |
| **Ovarian cancer** | NO |
| **Endometrial (uterine) cancer** | NO |
| **Stomach cancer** | NO |
| **Pancreatic cancer** | NO |
| **Colon or rectal cancer** | NO |
| **Any cancer not listed above** | N/A |

#### COMORBIDITIES

| | |
|---|---|
| **Cardiovascular disease** | YES |
| **Liver disease** | NO |
| **Hypertension** | NO |
| **Gallbladder complications** | NO |
| **Thyroid conditions** | NO |
| **Obesity** | YES |
| **Type 2 diabetes** | NO |
| **Blood clots or venous thromboembolism** | YES |
| **Other** | N/A |

#### FAMILY HISTORY

| | |
|---|---|
| **Cancer** | NO |
| **Breast cancer** | YES |
| **Cardiovascular disease** | NO |
| **Cerebrovascular disease** | NO |
| **SLE or Autoimmune** | NO |
| **Venous thrombus embolism** | NO |
| **Thyroid disease** | YES |
| **Hypertension** | NO |
| **Other** | N/A |

### TREATMENT CONSIDERATIONS

| | | | | | |
|---|---|---|---|---|---|
| **Hormone treatment preference** | Hrt | **Sensitive skin (Affects certain forms of HRT)** | NO | **Peanut Allergy (Affects certain forms of HRT)** | YES |
| **Undergoing HRT and/or taking any medications** | NO | **If yes, please list and provide necessary details:** | | | N/A |

# Hormone Zoomer - Summary

## Questionnaire Data

### HORMONE/MEDICATION USE

| HORMONE TYPE | BRAND | DELIVERY | DOSAGE | DATE | TIME | TIMES/DAY | HOW LONG USED |
|---|---|---|---|---|---|---|---|
| Estrogen/progesterone | Bezwecken | Sublingual | 5 Drops | 2025-08-08 | N/A | Mild | 2 Years |

### ADDITIONAL INFORMATION

Test Note 3

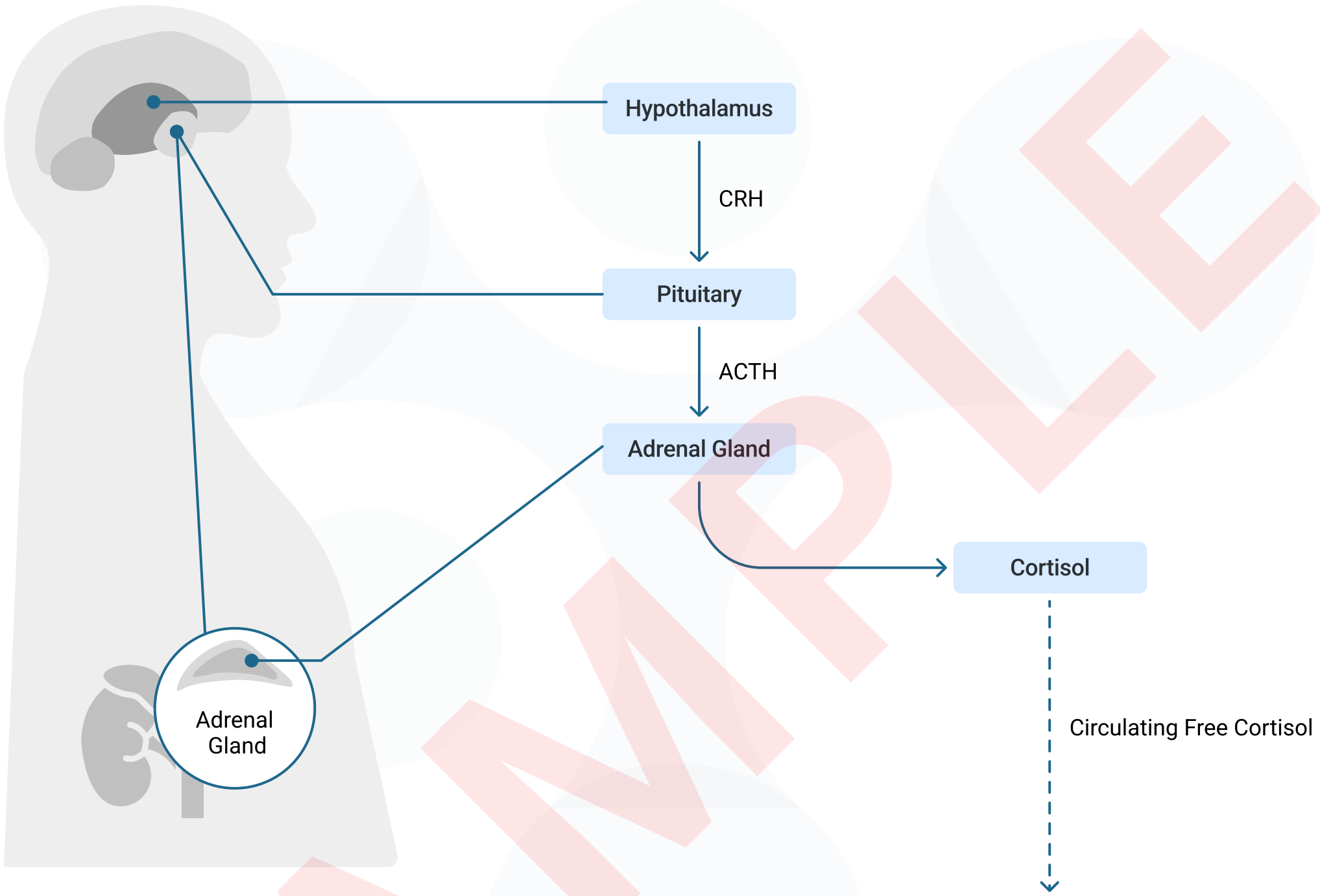
# Hormone Zoomer - Summary

## Cortisol Awakening Response - Saliva

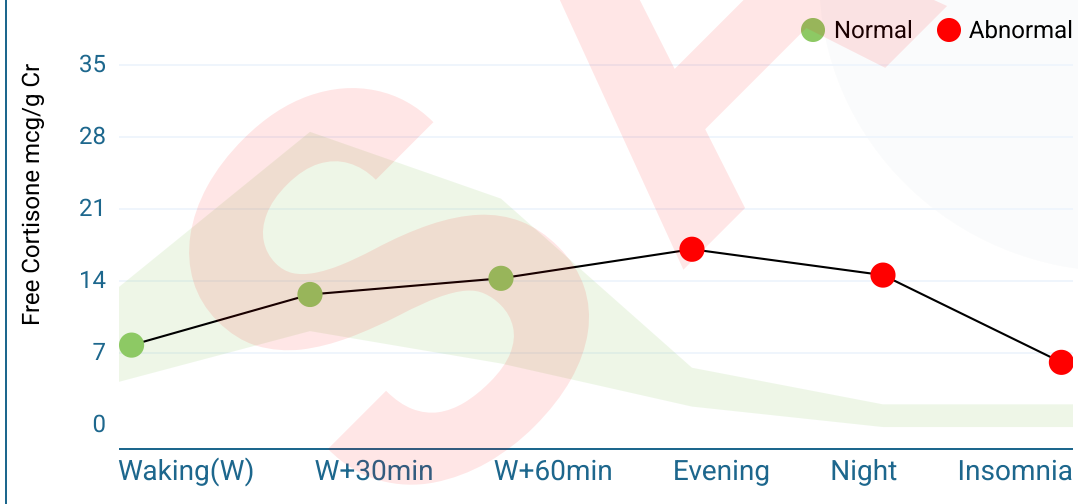
Moderate High / Low

**STRESS**

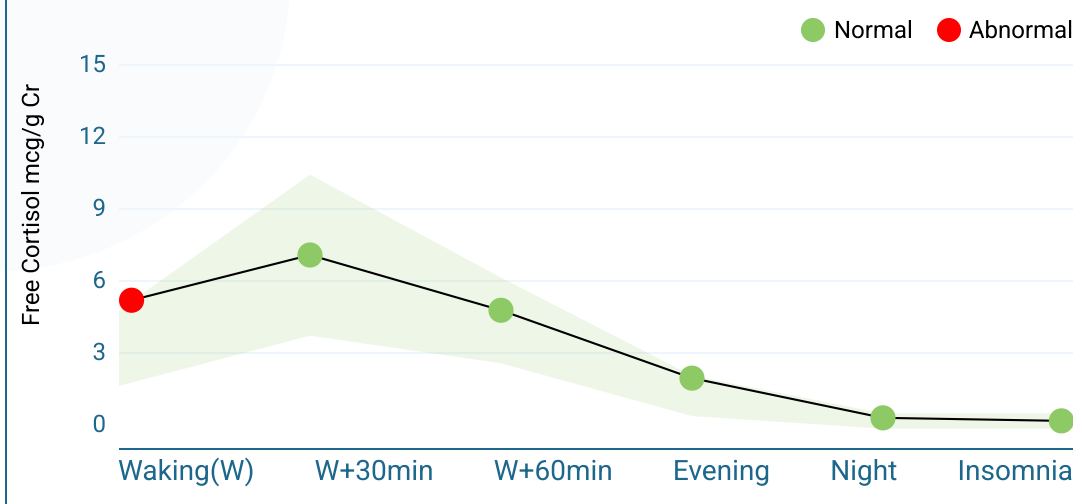
Stress (or inflammation) causes the brain to release ACTH, which stimulates the adrenal glands to make hormones




### SALIVA FREE CORTISONE PATTERN




### SALIVA FREE CORTISOL PATTERN




34.0 - 65.0
**78.1**
**Total cortisone levels**

**Cortisone and Cortisol interconvert (11β-HSD)**

11.0 - 24.0
**13**
**Total cortisol levels**

# Hormone Zoomer - Summary

## Cortisol Awakening Response

| Cortisol | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Saliva Cortisol – Waking (M) (ng/mL) | 5.60 | | 0.01 2.19 5.2 | 2.2-5.2 |
| Saliva Cortisol – W+30 min. (ng/mL) | 7.40 | | 0.01 4.19 10.6 | 4.2-10.6 |
| Saliva Cortisol – W +60 min. (ng/mL) | 5.20 | | 0.01 3.09 6.5 | 3.1-6.5 |
| Saliva Cortisol – Evening (ng/ml) | 2.50 | | 0 0.99 2.6 | 1.0-2.6 |
| Saliva Cortisol – Night (ng/ml) | 0.92 | | 0 0.49 1.1 | 0.5-1.1 |
| Saliva Cortisol – Insomnia (ng/mL) | 0.80 | | 0.01 0.49 1.1 | 0.5-1.1 |
| Saliva Cortisol Total (ng/mL) | 13.00 | | 0.01 10.9 24 | 11.0-24.0 |

### COMMENTS

***Saliva Cortisol – Waking (M):*** Cortisol, a stress hormone produced by the adrenal glands, peaks during the day and declines at night. It plays a key role in regulating stress responses, blood sugar, blood pressure, metabolism, and immune defense. Most cortisol in the blood is bound to carrier proteins, while salivary cortisol reflects bioavailable (free) cortisol. In healthy adults, W+30 min salivary cortisol is normally 18–32 nmol/L, representing peak HPA axis responsiveness as part of the cortisol awakening response. Levels consistently above ~40–55 nmol/L may indicate excessive adrenal activation, often linked to acute or chronic psychological stress, anxiety disorders, or adrenal hyperactivity. While a pronounced rise can confirm good HPA responsiveness, persistently excessive peaks may be associated with metabolic strain and cardiovascular risk. In premenopausal women, high W+30 min salivary cortisol levels may heighten stress, impair digestion, and exacerbate hormonal imbalances such as PCOS. Elevated cortisol levels can also indicate Cushing's syndrome, characterized by high blood pressure, elevated blood sugar, obesity, purple abdominal streaks, muscle wasting, acne, and osteoporosis. Factors such as depression, alcoholism, malnutrition, panic disorders, pregnancy, night shift work, and certain medications can also influence cortisol levels.

### SUPPORTIVE SUPPLEMENT SUGGESTIONS *(ENHANCES SPECIFIC ASSOCIATED FUNCTIONS WITHOUT INFLUENCING MARKERS DIRECTLY)*

***Galactooligosaccharides(5.5 g/day):*** Galactooligosaccharides (GOS) modulate the gut microbiota, promoting the growth of beneficial bacteria such as Bifidobacterium and Lactobacillus. These microbes enhance gut barrier integrity and stimulate the production of short-chain fatty acids, which influence the gut–brain axis and reduce hypothalamic–pituitary–adrenal (HPA) axis reactivity. As a result, the waking cortisol response is decreased through lowered stress signaling and improved neuroendocrine regulation.

***Polyphenol-rich dark chocolate(25 g/day):*** Polyphenol-rich chocolate inhibits 11β-HSD1, the enzyme that converts cortisone to active cortisol. This reduces regeneration of cortisol, lowering salivary cortisol levels. As a result, the cortisol:cortisone ratio decreases, supporting balanced circadian cortisol patterns.

### LIFESTYLE SUGGESTIONS

Cortisol: Yoga (60 min/day), Meditation (30 - 50 min/day)

| Cortisone | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Saliva Cortisone – Waking (M) (ng/mL) | 8.90 | | 0.01 5.49 14.3 | 5.5-14.3 |
| Saliva Cortisone – W+30 min. (ng/mL) | 13.60 | | 0.01 10.2 28.7 | 10.3-28.7 |
| Saliva Cortisone – W +60 min. (ng/mL) | 15.10 | | 0.01 7.19 22.5 | 7.2-22.5 |

# Hormone Zoomer - Summary

## Cortisol Awakening Response

| Cortisone | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Saliva Cortisone – Evening (ng/ml) | 17.80 | | 0 3.19 6.8 | 3.2-6.8 |
| Saliva Cortisone – Night (ng/ml) | 15.40 | | 0 1.29 3.4 | 1.3-3.4 |
| Saliva Cortisone – Insomnia (ng/mL) | 7.30 | | 0.01 1.29 3.4 | 1.3-3.4 |
| Saliva Cortisone Total (ng/mL) | 78.10 | | 0.01 33.9 65 | 34.0-65.0 |

### COMMENTS

***Saliva Cortisone – Evening:*** Cortisone, the inactive form of cortisol, is converted from cortisol by the kidneys, colon, and salivary glands. Similar to cortisol, cortisone levels peak in the morning, gradually decline throughout the day, and reach their lowest point at night, aligning with the body's diurnal rhythm. While most steroid hormones in the blood are bound to carrier proteins, salivary hormones reflect bioavailable (free and unbound) steroids. Free cortisone, derived from free cortisol converted in the kidneys before excretion, serves as a superior marker for cortisol levels and a secondary, confirmatory indicator of cortisol fluctuations. Cortisone levels should naturally decline in the evening, supporting the body's preparation for rest. Evening measurements can help assess whether the diurnal rhythm of cortisone follows the expected pattern. Persistent elevation may indicate stress, HPA axis dysregulation, or other adrenal imbalances. In premenopausal women, elevated evening cortisone levels may cause irritability, disrupted ovulation, and difficulty preparing for sleep. Additionally, high cortisone levels, along with elevated cortisol, are observed in patients with Cushing's syndrome, a condition caused by the overproduction of stress hormones by the adrenal glands.

***Saliva Cortisone – Night:*** Cortisone, the inactive metabolite of cortisol, reflects bioavailable hormone levels and helps assess adrenal function and circadian regulation. In premenopausal women, night-time salivary cortisone levels above approximately 18 nmol/L may indicate chronic stress, hyperactivity of the HPA axis, or disruption of normal circadian decline.

***Saliva Cortisone Total:*** Cortisone, as the inactive metabolite of cortisol, provides insight into overall adrenal function and cumulative stress hormone exposure. In premenopausal women, total salivary cortisone levels above approximately 350 nmol/L may indicate chronic stress, HPA axis overactivity, or altered cortisone metabolism.

***Saliva Cortisone – Insomnia:*** Salivary cortisol and cortisone are non-invasive biomarkers that reflect hypothalamic-pituitary-adrenal (HPA) axis activity. In individuals with insomnia, alterations in these hormones are commonly observed, as sleep disturbances disrupt circadian rhythm and stress regulation. Cortisol, the primary stress hormone, typically peaks in the morning and declines throughout the day, while cortisone represents its inactive metabolite. Deviations in their salivary levels—whether below the lower limit or above the upper limit—indicate dysregulation of HPA axis function, contributing to impaired sleep quality, heightened arousal, and increased risk of metabolic and cardiovascular complications. In premenopausal women upper levels indicates heightened cortisone response, often linked to hyperactivation of the HPA axis, exaggerated cortisol metabolism, and poor sleep quality.

### SUPPORTIVE SUPPLEMENT SUGGESTIONS *(ENHANCES SPECIFIC ASSOCIATED FUNCTIONS WITHOUT INFLUENCING MARKERS DIRECTLY)*

***Liquorice(50 mg/day):*** Liquorice decreases salivary cortisone through glycyrrhetinic acid, its active metabolite. Glycyrrhetinic acid inhibits 11β-hydroxysteroid dehydrogenase type 2 (11β-HSD2), which normally converts cortisol to cortisone. This inhibition leads to reduced cortisone levels and a relative increase in cortisol. The shift in cortisol:cortisone ratio reflects suppressed cortisone regeneration due to enzyme blockade.

***Melatonin(5 mg/day):*** Melatonin supports circadian regulation and promotes restorative sleep by modulating elevated nocturnal cortisone levels. Supplementation helps normalize HPA axis signaling, reducing hyperarousal and stress-related insomnia. By aligning the body's internal clock, melatonin improves sleep onset, continuity, and overall sleep quality.

### LIFESTYLE SUGGESTIONS

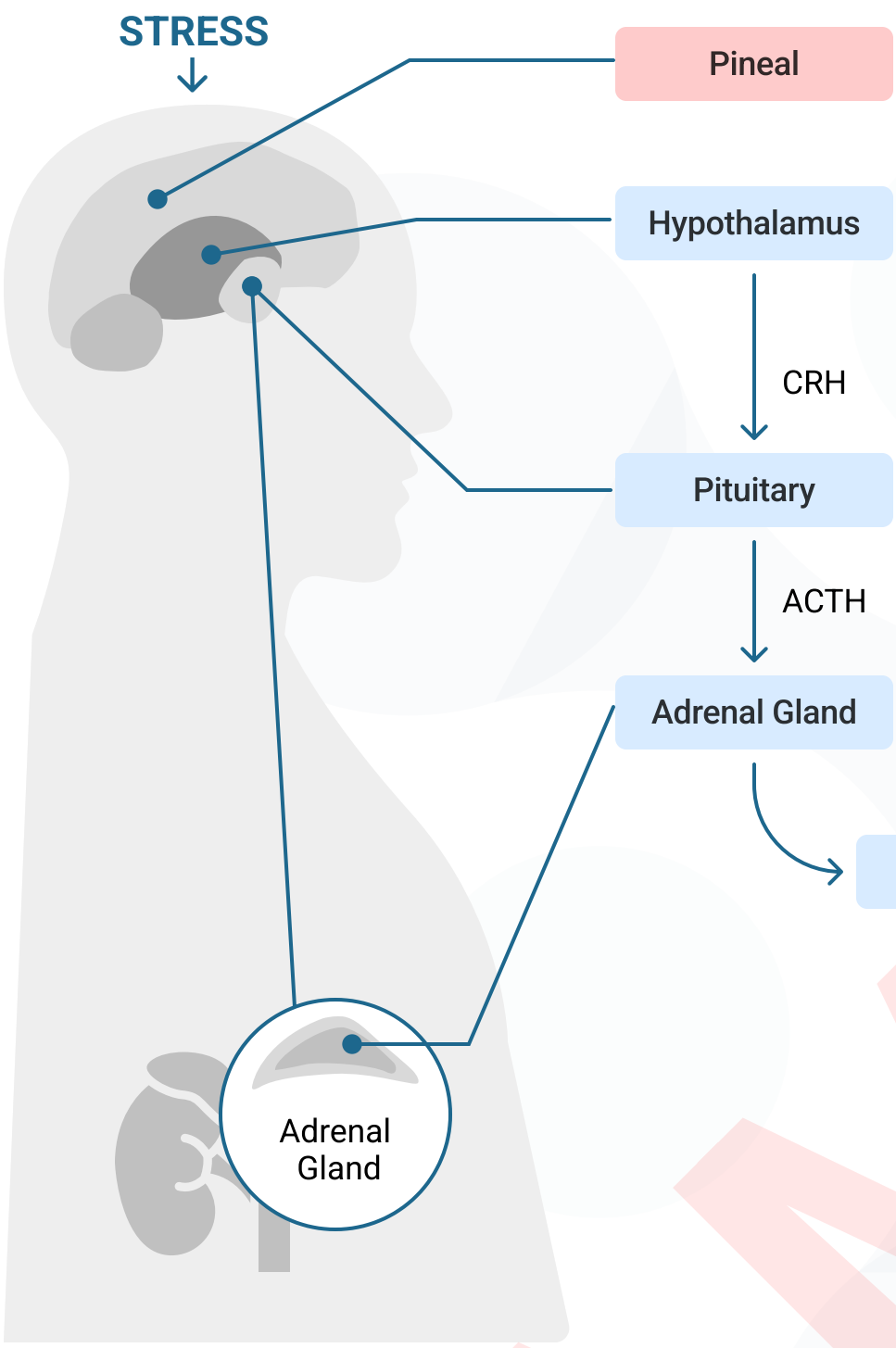
Cortisone: Yoga (60 min/day), Meditation (30 - 50 min/day)

Patient Name: **DEMO DEMO**
Date of Birth: **05-06-1974** Accession ID: **2664704445**
Service Date: **2024-03-21 01:00 (PST)**

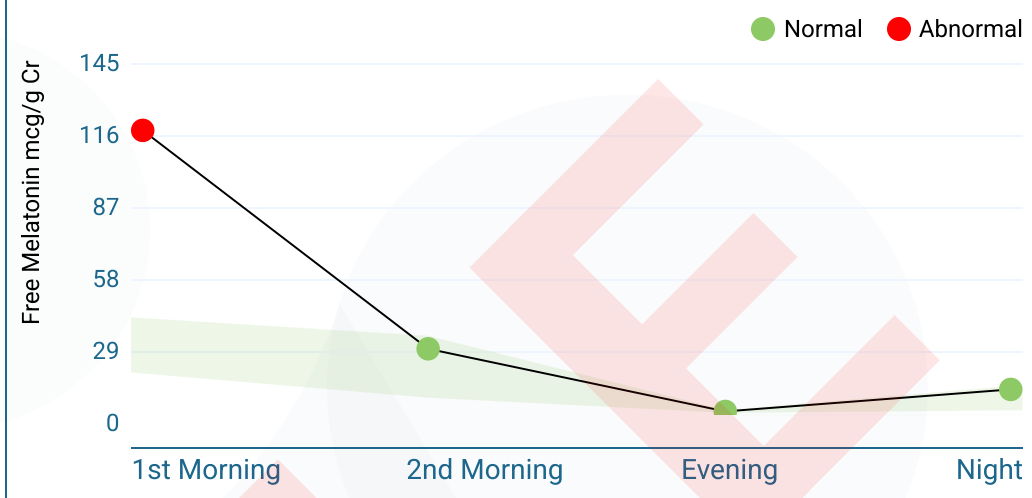
# Hormone Zoomer - Summary

## Adrenal Hormones

Moderate | High / Low




### URINARY DIURNAL MELATONIN MT6S




500 - 2000
**940.7**

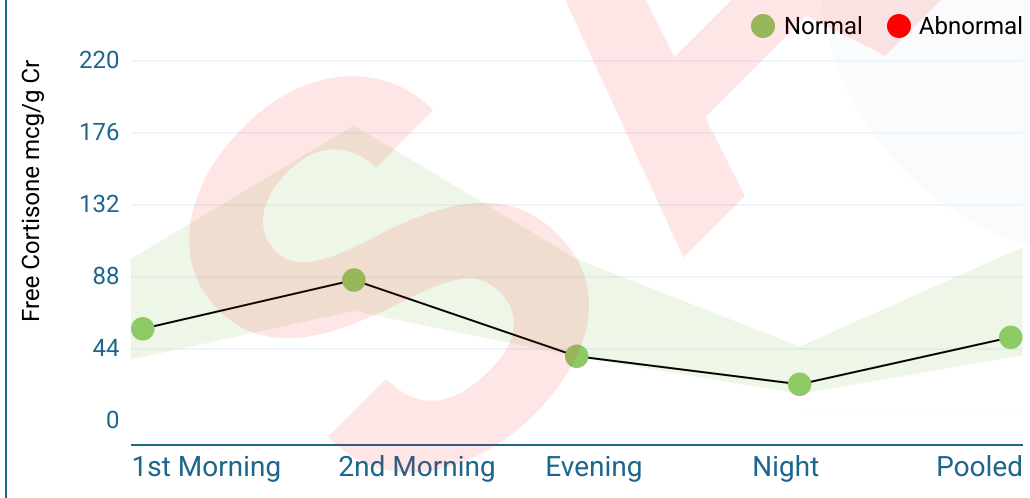
881.68 - 2319.75
**1650.38**

### Cortisol/Cortisone

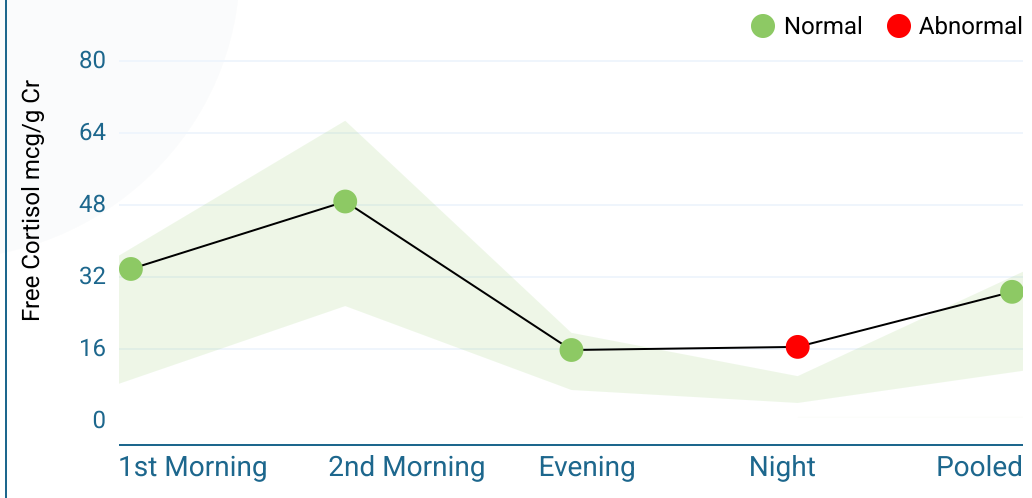
11β-HSD index measures the activity level of the 11β-HSD enzyme which maintains balance between active cortisol and inactive cortisone. Increased cortisol levels has been associated with conditions like metabolic syndrome and insulin resistance.

0.54 - 0.88
**1**

### URINARY FREE DIURNAL CORTISONE




### URINARY FREE DIURNAL CORTISOL




24.33 - 45.36
**37.05**
**Total cortisone levels**

**Cortisone and Cortisol interconvert (11β-HSD)**

13.05 - 40.11
**36.91**
**Total cortisol levels**

# Hormone Zoomer - Summary

## Adrenal Hormones

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| b-Tetrahydrocortisol (b-THF) (mcg/g) | 670.63 | | 0 265 729 | 265.2-729.3 |
| a-Tetrahydrocortisol (a-THF) (mcg/g) | 24.43 | | 0 18.1 79.2 | 18.12-79.22 |
| b-Tetrahydrocortisone (b-THE) (mcg/g) | 955.32 | | 0 598 1511 | 598.36-1511.23 |
| Deoxycorticosterone (mcg/g) | 1.49 | | 0 0.64 2.18 | 0.65-2.18 |
| Corticosterone (mcg/g) | 3.32 | | 0 3.65 10.1 | 3.66-10.12 |
| DHEA (mcg/g) | 27.29 | | 0 6.76 42.1 | 6.77-42.11 |
| DHEA-S (mcg/g) | 12.11 | | 0 5.21 31.7 | 5.22-31.78 |
| Metabolized Cortisol (THF+THE) (mcg/g) | 1650.38 | | 0 881 2319 | 881.68-2319.75 |
| Total Cortisol (mcg/g) | 36.91 | | 0 13.0 40.1 | 13.05-40.11 |
| Total Cortisone (mcg/g) | 37.05 | | 0 24.3 45.3 | 24.33-45.36 |

### COMMENTS

***Corticosterone:*** Corticosterone, a steroid hormone produced by the adrenal glands, plays a crucial role as a precursor to aldosterone (a hormone that regulates blood pressure) and significantly influences stress response and energy metabolism. Testing for corticosterone provides valuable insights into stress response can reflect blood pressure regulation, which is crucial for maintaining overall well-being. Monitoring corticosterone levels helps assess adrenal function and its role in stress-related conditions. Low levels of corticosterone could indicate hormonal insufficiency and hormonal imbalance. Low levels of this hormone results in fatigue, mood swings, weight loss, sleep disturbances, and increased sensitivity to cold.

### SUPPLEMENT SUGGESTIONS

***Vitamin E(22 IU/day):*** Vitamin E increases corticosterone levels by enhancing antioxidant defenses, which protect the adrenal cortex from oxidative stress, thereby supporting steroidogenesis. This reduces lipid peroxidation and stabilizes cell membranes, facilitating the synthesis and release of corticosterone. Additionally, Vitamin E modulates signaling pathways involved in adrenal hormone production.

***N-Acetylcysteine (NAC)(600 mg/day):*** N-Acetylcysteine (NAC) increases corticosterone by boosting glutathione levels, which reduces oxidative stress and enhances adrenal gland function. This improved adrenal function promotes the synthesis and release of corticosterone. Additionally, NAC influences the hypothalamic-pituitary-adrenal (HPA) axis, leading to increased corticosterone production.

## Diurnal Cortisol

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Free Cortisol (1st Morning) (mcg/g) | 33.20 | | 0 7.49 36.2 | 7.5-36.2 |
| Free Cortisol (2nd Morning) (mcg/g) | 48.31 | | 0 24.8 66.4 | 24.9-66.4 |
| Free Cortisol (Evening) (mcg/g) | 15.05 | | 0 6.09 18.9 | 6.1-18.9 |

# Hormone Zoomer - Summary

## Diurnal Cortisol

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Free Cortisol (Night) (mcg/g) | 15.75 | | 0 3.19 9.2 | 3.2-9.2 |
| Free Cortisol (pooled) (mcg/g) | 28.08 | | 0 10.4 32.6 | 10.43-32.68 |

### COMMENTS

***Free Cortisol (Night):*** Cortisol, widely known as the body's stress hormone is produced in the adrenal glands. Its levels are generally seen to peak in the morning and then decline throughout the day, reaching the lowest at night. Cortisol is seen to interact with every organ in the body and it is involved in various processes such as stress responses, regulation of blood sugar, blood pressure maintenance, regulation of metabolism, and immune responses. Cortisol levels are seen to increase in conditions of stress; however, if the levels remain high for too long then it can give rise to clinical implications. Testing cortisol levels help in assessing how well the pituitary and adrenal glands are functioning. Nighttime cortisol assessment helps determine whether this decline follows the expected diurnal pattern or if abnormalities, such as sustained elevated levels, indicate conditions like chronic stress or sleep disorders. In premenopausal women, elevated nighttime cortisol levels may contribute to insomnia, mood disorders, and hormonal disruptions, potentially affecting fertility and menstrual regularity. High cortisol levels can also indicate Cushing's syndrome, characterized by high blood pressure, high blood sugar, obesity, purple abdominal streaks, muscle wasting, acne, and osteoporosis. Factors such as depression, alcoholism, malnutrition, panic disorders, pregnancy, night shifts, and certain medications can also influence cortisol levels.

### SUPPLEMENT SUGGESTIONS

***Magnesium(350 mg/day):*** Magnesium supplements decrease cortisol by regulating the hypothalamic-pituitary-adrenal (HPA) axis, which controls stress response. Magnesium acts as a cofactor for enzymes involved in neurotransmitter synthesis, promoting GABA activity, and reducing excessive neuronal firing, which helps lower cortisol production. Additionally, magnesium enhances sleep quality, further reducing cortisol levels.

***Vitamin C(1500 mg/day):*** Vitamin C supplementation decreases cortisol levels by reducing the secretion of cortisol in response to stress. It supports the adrenal glands, which produce cortisol, thereby improving their function and reducing excessive cortisol release. Additionally, vitamin C acts as an antioxidant, mitigating oxidative stress that can stimulate cortisol production.

***Ashwagandha(600 mg/day):*** Ashwagandha or its root extract decreases cortisol by inhibiting the activity of the hypothalamic-pituitary-adrenal (HPA) axis, leading to reduced adrenal cortisol production. It enhances the resilience of the body to stress, promoting homeostasis and lowering cortisol levels. Additionally, ashwagandha's bioactive compounds modulate neurotransmitter activity, further aiding in stress reduction.

***Tangeretin(200 mg/day):*** Tangeretin, a polymethoxylated flavone found in citrus peels, decreases cortisol levels by inhibiting the enzyme 11β-hydroxysteroid dehydrogenase type 1 (11β-HSD1), which converts inactive cortisone to active cortisol. This inhibition reduces the overall production of cortisol within tissues. Additionally, tangeretin's antioxidant properties may mitigate stress-induced cortisol secretion, further lowering cortisol levels in the body.

## Diurnal Cortisone

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Free Cortisone (1st Morning) (mcg/g) | 51.97 | | 0 32.6 95.8 | 32.7-95.8 |
| Free Cortisone (2nd Morning) (mcg/g) | 82.45 | | 0 63.0 179 | 63.1-179.2 |
| Free Cortisone (Evening) (mcg/g) | 34.78 | | 0 34.4 95.6 | 34.5-95.6 |
| Free Cortisone (Night) (mcg/g) | 17.26 | | 0 11.1 40.9 | 11.2-40.9 |
| Free Cortisone (pooled) (mcg/g) | 46.62 | | 0 35.3 102 | 35.38-102.88 |

# Hormone Zoomer - Summary

## Diurnal Melatonin

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Melatonin (1st Morning) (mcg/g) | 117.24 | | 0 17.4 40.2 | 17.5-40.2 |
| Melatonin (2nd Morning) (mcg/g) | 27.23 | | 0 7.09 32.6 | 7.1-32.6 |
| Melatonin (Evening) (mcg/g) | 1.43 | | 0 0.86 2 | 0.87-2.0 |
| Melatonin (Night) (mcg/g) | 10.50 | | 0 1.89 12.3 | 1.9-12.3 |

### COMMENTS

***Melatonin (1st Morning):*** Melatonin is a hormone secreted by the pineal gland in response to darkness, earning it the nickname hormone of darkness. It induces sleep and helps regulate the circadian rhythm (24-hour internal clock). In addition to its role in sleep regulation, melatonin influences hormone function by modulating the hypothalamic-pituitary-gonadal axis, thereby impacting reproductive hormones and maintaining circadian rhythm alignment. Melatonin levels are typically lowest in the morning, with nearly 80% of melatonin synthesized at night. Measuring melatonin levels in the morning can help assess whether suppression is appropriate, indicating normal circadian rhythm function. Elevated morning melatonin levels may suggest a disrupted circadian rhythm, potentially causing grogginess, fatigue, and mood disturbances.

### SUPPLEMENT SUGGESTIONS

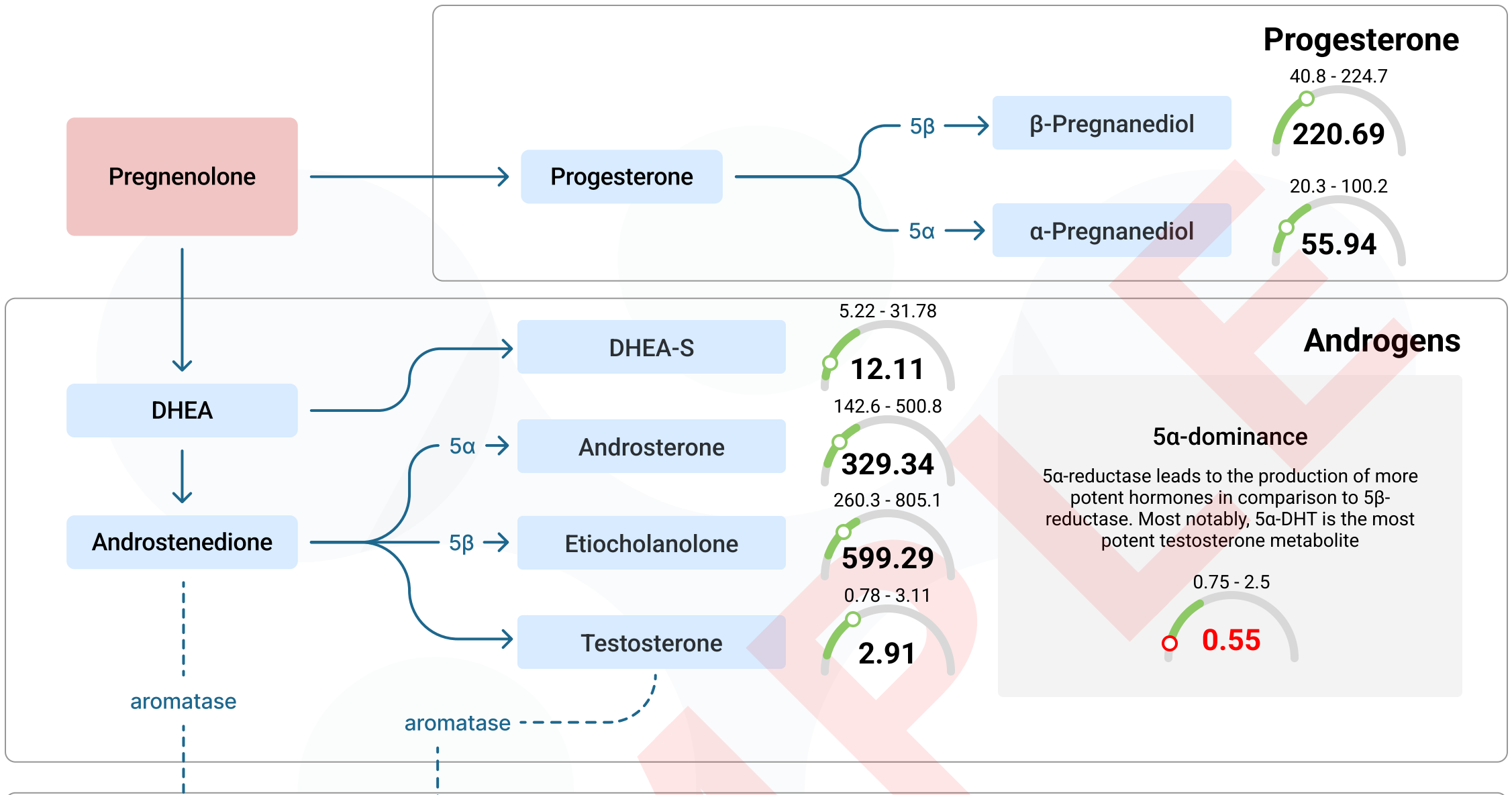
***Caffeine(200 mg/day):*** Caffeine is metabolized in the liver by cytochrome P450 (CYP)1A2, which also metabolizes melatonin. By competing for the same enzyme, caffeine reduces melatonin breakdown, leading to higher nighttime melatonin levels. This interaction was confirmed in a study where participants showed a 32% increase in melatonin after caffeine ingestion compared to placebo.

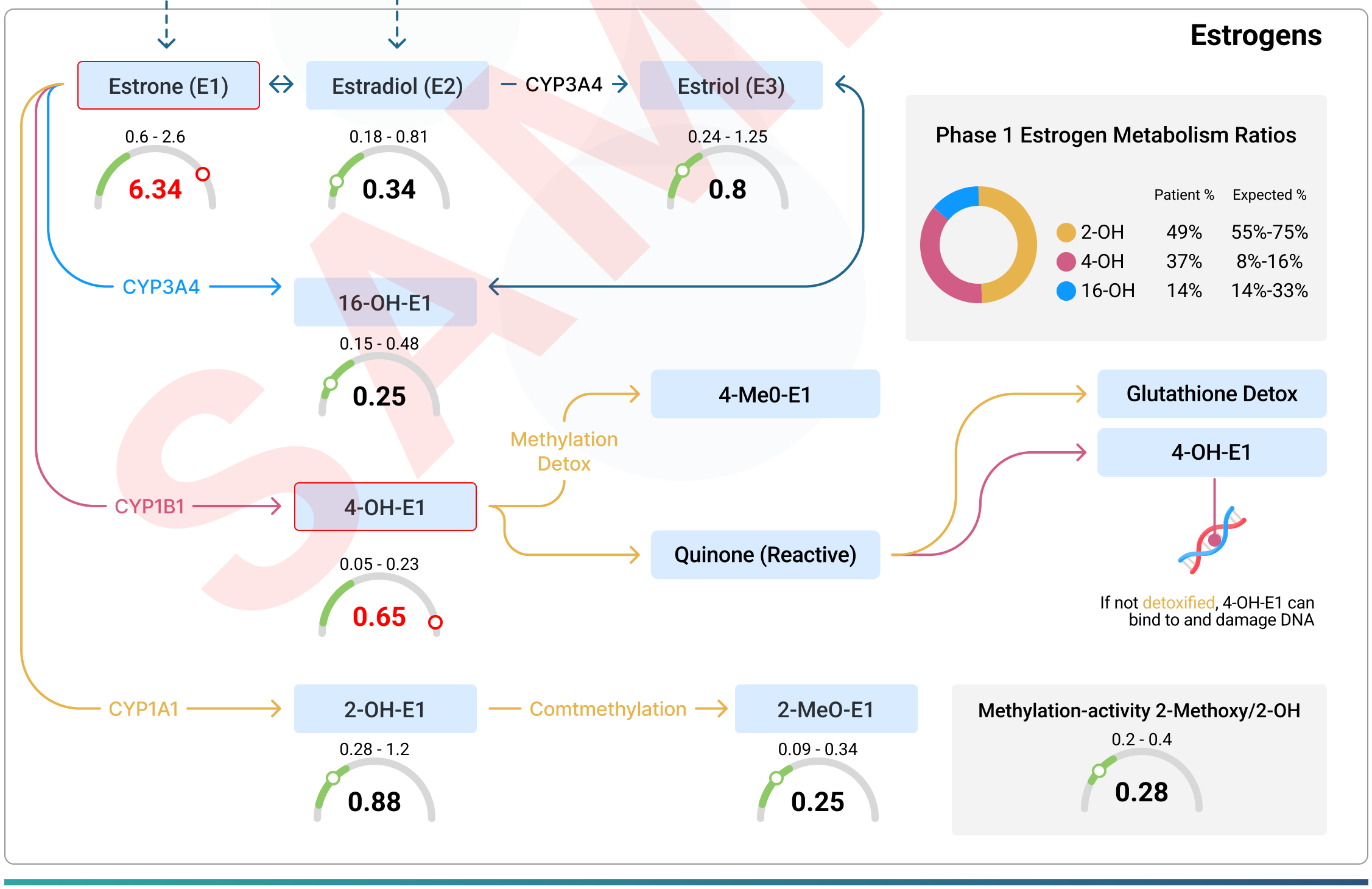
Patient Name: **DEMO DEMO**
Date of Birth: **05-06-1974** Accession ID: **2664704445**
Service Date: **2024-03-21 01:00 (PST)**

# Hormone Zoomer - Summary

## Sex Hormone - Urine

Moderate | High / Low



Patient Name: **DEMO DEMO**
Date of Birth: **05-06-1974** Accession ID: **2664704445**
Service Date: **2024-03-21 01:00 (PST)**

# Hormone Zoomer - Summary

## Estrogen

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Estradiol (E2) (mcg/g) | 0.34 | | 0 0.17 0.81 | 0.18-0.81 |
| Estrone (E1) (mcg/g) | 6.34 | | 0 0.59 2.6 | 0.6-2.6 |
| Estriol (E3) (mcg/g) | 0.80 | | 0 0.23 1.25 | 0.24-1.25 |
| Total Estrogen (mcg/g) | 9.98 | | 0 5.41 16.1 | 5.42-16.13 |
| 2-OH Estradiol (mcg/g) | 0.48 | | 0 0.07 0.29 | 0.08-0.29 |
| 2-OH Estrone (mcg/g) | 0.88 | | 0 0.27 1.2 | 0.28-1.2 |
| 4-OH Estradiol (mcg/g) | 0.32 | | 0 0.02 0.15 | 0.03-0.15 |
| 4-OH Estrone (mcg/g) | 0.65 | | 0 0.04 0.23 | 0.05-0.23 |
| 16a-OH Estrone (mcg/g) | 0.25 | | 0 0.14 0.48 | 0.15-0.48 |
| 2-MeO Estradiol (mcg/g) | 0.04 | | 0 0.01 0.09 | 0.02-0.09 |
| 2-MeO Estrone (mcg/g) | 0.25 | | 0 0.08 0.34 | 0.09-0.34 |
| 4-MeO Estradiol (mcg/g) | 0.04 | | 0 0.05 | ≤0.05 |
| 4-MeO Estrone (mcg/g) | 0.10 | | 0 0.05 | ≤0.05 |

### COMMENTS

***Estrone (E1):*** Estrone (E1) is one of the three major endogenous estrogens, the others being estradiol and estriol. E1, as well as the other estrogens, are synthesized from cholesterol and secreted mainly from the gonads, though E1 can also be formed from adipose tissue and adrenal glands. Relative to estradiol, both E1 and estriol have far weaker activity. E1 can be converted into estradiol and serves mainly as a precursor or metabolic intermediate of estradiol. While estradiol or E2 is the major female hormone during the premenopausal stage, E1 is the major hormone during the postmenopausal stage. Due to this, the levels of E1 is usually low in premenopausal women. However, E1 is needed to maintain hormonal balance and maintain reproductive and bone health. An increase in levels of E1 during premenopausal stage could be due to estrogen dominance, polycystic ovary syndrome, obesity, diabetes, dysbiosis, steroid medications, excessive alcohol consumption, and over-aromatization of testosterone. High levels of E1 are associated with menstrual irregularities, fatigue, low libido, and increased risk of uterine fibroids, cancers, and cardiovascular diseases.

***2-OH Estradiol:*** 2-hydroxyestradiol or 2-OH E2 is a metabolite of estradiol formed by the hydroxylation of estradiol. Other metabolites like 4-hydroxyestradiol (4-OH E2) are also formed. Studies state that the conversion of estradiol to 2-OH E2 is a safer pathway of hydroxylation than the conversion to 4-OH E2. This is because 4-OH E2 can bind to DNA and cause damage, leading to mutations that are associated with increased breast cancer risk. Elevated levels of 2-OH E2 is associated with lower body fat, reduced risk of breast cancer, and improved endometrial health.

***4-OH Estradiol:*** 4-hydroxyestradiol or 4-OH E2 is a metabolite of estradiol formed by the hydroxylation of estradiol by cytochrome P450 enzymes. Studies state that the conversion of estradiol to 4-OH E2 is toxic as 4-OH E2 is seen to have tumorigenic effects. 4-OH E2 can bind to DNA and cause damage, leading to mutations that are associated with increased breast cancer risk. Human breast cancer tissue produces much higher levels of 4-OH E2 compared to normal breast tissue.

# Hormone Zoomer - Summary

## Estrogen

### COMMENTS

***4-OH Estrone:*** The production of 4-OH Estrone (4-OH-E1) occurs via a minor pathway of estrogen metabolism. This pathway is genotoxic (promoting DNA or chromosomal damage) as its metabolites can create reactive products that damage DNA. Estrone can be converted to 4-OH-E1 which can further be methylated to form 4-MeE1. 4-OH-E1 properly methylated to 4-MeE1 it is relatively benign as 4-MeE1 is easily eliminated. However, improper methylation can lead to the build-up of 4-OH-E1 which results in the formation of 3,4-quinones which are carcinogenic. Thus, 4-OH-E1 is referred to as the “bad” estrogen. Breast cancer tissues produces much higher levels of 4-OH-E1 than 2-Hydroxyestrone (2-OHE1), while normal breast tissue produces approximately equal amounts of the two metabolites. Women having uterine fibroids may have increased levels of 4-OH-E1 accompanied with heavy menstrual cycles. Additionally, patients deficient in methionine and folic acid may also have high levels of 4-OH-E1.

***4-MeO Estrone:*** 4-Methoxyestrone (4-MeO E1) is a crucial metabolite of estrone, produced by the enzyme catechol-O-methyltransferase (COMT). Measuring 4-MeO E1 provides valuable insights into estrogen metabolism and hormone health. Low levels of 4-MeOE1 in premenopausal women may suggest impaired COMT activity, indicating potential metabolic imbalances. High levels of 4-MeOE1 in premenopausal women is associated with adequate methylation capacity, hormonal balance, and reduced risk of oxidative stress mediated DNA damage and cancers like breast cancer. However, high levels of 4-MeOE1 with low levels of other protective metabolites like 4-MeoE2 may still be associated with cancer risk. By testing 4-MeO E1, you can gain a clearer picture of estrogen detoxification pathways, helping to assess hormonal health and mitigate risks associated with harmful estrogen metabolites.

### SUPPLEMENT SUGGESTIONS

***Soy(40 mg/day):*** Soy supplements contain phytoestrogens like genistein, which compete with estrone for estrogen receptors, reducing estrone's effects. These compounds also influence estrogen metabolism, leading to lower circulating estrone levels. The combined impact helps to modulate estrogenic activity in the body.

***Wheat bran(10 g/day):*** Wheat bran increases dietary fiber intake, which binds estrogens and enhances their excretion through the feces. This process reduces the enterohepatic recirculation of estrogens, leading to lower serum estrone levels. Consequently, decreased serum estrone can also reduce urinary estrone excretion.

***Soy isoflavones(30 mg/day):*** Soy isoflavones, such as genistein, inhibit the activity of aromatase, reducing estrogen synthesis. They also act as selective estrogen receptor modulators, which can decrease the formation of 4-OH estradiol. Additionally, they increase the expression of detoxification enzymes, promoting the metabolism and excretion of 4-OH estradiol.

### SUPPORTIVE SUPPLEMENT SUGGESTIONS *(ENHANCES SPECIFIC ASSOCIATED FUNCTIONS WITHOUT INFLUENCING MARKERS DIRECTLY)*

***Vitamin D(600 IU/day):*** Vitamin D supplements can lower estradiol levels by promoting the expression of enzymes that convert estradiol to its less active metabolites. This process is mediated through the regulation of estrogen metabolism and the modulation of estrogen receptor activity. Consequently, increased vitamin D levels can indirectly reduce estradiol availability for 2-hydroxylation. Together, these mechanisms can contribute to lower circulating and urinary levels of 2-hydroxyestradiol, potentially reducing estrogen-related proliferative activity.

## Progesterone

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Allopregnanolone (mcg/g) | 0.94 | | 0 0.3 1.38 | 0.31-1.38 |
| 3αDihydroprogesterone (mcg/g) | 0.35 | | 0 0.11 0.91 | 0.12-0.91 |
| 20αDihydroprogesterone (mcg/g) | 5.17 | | 0 0.62 5.66 | 0.63-5.66 |
| b-Pregnanediol (mcg/g) | 220.69 | | 0 40.7 224 | 40.8-224.7 |
| a-Pregnanediol (mcg/g) | 55.94 | | 0 20.2 100 | 20.3-100.2 |

# Hormone Zoomer - Summary

## Testosterone

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Testosterone (T) (mcg/g) | 2.91 | | 0 0.77 3.11 | 0.78-3.11 |
| Epi-Testosterone (Epi-T) (mcg/g) | 0.54 | | 0 0.34 1.25 | 0.35-1.25 |
| Androstenedione (mcg/g) | 4.11 | | 0 2.57 7.44 | 2.58-7.44 |
| Androsterone (mcg/g) | 329.34 | | 0 142 500 | 142.6-500.8 |
| Etiocholanolone (mcg/g) | 599.29 | | 0 260 805 | 260.3-805.1 |
| 5a-DHT (mcg/g) | 0.55 | | 0 0.33 1.05 | 0.34-1.05 |
| 5a,3a-Androstanediol (mcg/g) | 16.65 | | 0 2.45 8.59 | 2.46-8.59 |
| 5b-Androstanediol (mcg/g) | 7.20 | | 0 4.14 15.6 | 4.15-15.66 |

### COMMENTS

***5a,3a-Androstanediol:*** 5α,3α-Androstanediol is an androgen metabolite of testosterone and androstenediol. Testosterone can get converted to androstenediol and this conversion is higher in normal men and hirsute women than in normal females. Measurement of urinary androstanediol, often in association with testosterone and/or androstenedione, is commonly used to study women with hyperandrogenic syndromes. High levels of urinary androstanediols have been found in premenopausal women with idiopathic hirsutism which is an endocrine abnormality. Additionally, 5α,3α-androstanediol is also an androgenic neurosteroid (steroid synthesized within the brain) and seen to exhibit anticonvulsant and neuroprotective activity.

### SUPPORTIVE SUPPLEMENT SUGGESTIONS *(ENHANCES SPECIFIC ASSOCIATED FUNCTIONS WITHOUT INFLUENCING MARKERS DIRECTLY)*

***Chromium picolinate(200 µg/day):*** Chromium picolinate enhances insulin sensitivity by facilitating glucose metabolism, which helps regulate blood sugar levels. This, in turn, can reduce elevated androgen levels linked to hirsutism. Improved insulin sensitivity may contribute to decreased hair growth in individuals with insulin resistance-related hirsutism.

***Calcium and vitamin D (Ca/ Vit.D)(1,000 mg of calcium):*** Calcium and vitamin D supplements prevent hirsutism by maintaining adequate calcium levels and enhancing vitamin D absorption, which are crucial for proper hormonal balance. Vitamin D helps regulate androgen levels, while calcium supports overall endocrine function. This combined action helps mitigate the excessive hair growth associated with hirsutism.

***Melatonin(5 mg/day):*** Melatonin supplements help prevent hirsutism by regulating androgen levels and reducing the activity of hair growth-promoting hormones. Additionally, melatonin exhibits anti-inflammatory effects that can address underlying conditions contributing to excessive hair growth. This combined action helps manage and mitigate the symptoms associated with hirsutism.

## Hormone Ratios

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| E3/(E1+E2) Ratio | 0.12 | | 0 0.4 | ≤0.4 |
| 2-OH (E1 + E2)/16a-OH E1 | 5.44 | | 0 1.19 5.7 | 1.2-5.7 |
| 2-OH E1 /4-OH E1 | 6.0 | | 0 2.4 8.7 | 2.5-8.7 |

Patient Name: **DEMO DEMO**
Date of Birth: **05-06-1974** Accession ID: **2664704445**
Service Date: **2024-03-21 01:00 (PST)**

# Hormone Zoomer - Summary

## Hormone Ratios

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| 2-MeO E1/2-OH E1 | 0.28 | | 0 0.19 0.4 | 0.2-0.4 |
| 4-MeO E1/4-OH E1 | 0.71 | | 0 0.1 0.23 | 0.11-0.23 |
| 4-MeO E2/4-OH E2 | 0.13 | | 0 0.24 0.42 | 0.25-0.42 |
| T/Epi-T | 1.32 | | 0 1.49 4.3 | 1.5-4.3 |
| b-Pregnanediol/E2 | 649.09 | | 0 226 277 | 226.67-277.41 |
| Cortisol/Cortisone (mcg/g) | 1.00 | | 0 0.53 0.88 | 0.54-0.88 |

### COMMENTS

***4-MeO E1/4-OH E1:*** 4-hydroxyestrone (4-OH-E1) and 4-methoxyestrone (4-MeO1) are estrone metabolites and their ratio is used to assess the risk of breast cancer. 4OHE1 is reactive and can be carcinogenic in nature. 4MeOE1 is formed from 4OHE1 by the action of an enzyme (COMT). Methylation of 4-OH-E1 via the COMT enzyme is beneficial as this renders it inert and prevents it from oxidizing further to a more harmful estrogen quinone that can form an adduct with DNA, causing mutations leading to increased cancer risk. A higher 4-MeO E1/4-OH E1 ratio is related to a lower risk of breast cancer.

***4-MeO E2/4-OH E2:*** 4-hydroxyestradiol (4-OH-E2) and 4-methoxyestradiol (4-MeO1) are estradiol metabolites and their ratio is used to assess the risk of breast cancer. 4OHE2 is reactive and can be carcinogenic in nature. 4MeOE2 is formed from 4OHE2 by the action of an enzyme (COMT). Methylation of 4-OH-E2 via the COMT enzyme is beneficial as this renders it inert and prevents it from oxidizing further to a more harmful estrogen quinone that can form an adduct with DNA, causing mutations leading to increased cancer risk. A lower 4-MeO E2/4-OH E2 ratio is related to a higher risk of breast cancer.

***T/Epi-T:*** Testosterone (T) is the primary male sex hormone while epitestosterone (Epi-T) is a naturally occurring epimer of testosterone. Epi-T is a weak antagonist and inhibits an enzyme that is involved in testosterone synthesis. The T/Epi-T ratio normally equals one because T and Epi-T are synthesized in equal amounts from androstenedione and DHEA, respectively. Low levels of T/epi-T ratio is associated with decreased production of testosterone or testosterone metabolism impairment. Moreover, a low T/epi-T ratio could also indiacte the use of testosterone precursors like DHEA which may affect the balance of androgens in the body. A low T/epi-T ratio is used to diagnose androgen deficiencies.

***b-Pregnanediol/E2:*** b-Pregnanediol is a metabolite of the steroid, progesterone, which is important for fertility and menstruation. Estradiol (E2) is one of the major sex steroids of the three estrogens present in the female reproductive system. The b-Pregnanediol/E2 ratio reflects the balance between progesterone metabolites and estrogen levels. A high b-Pregnanediol/E2 ratio suggests that E2 levels are low which can lead luteal phase defect. This can result in fertility issues like maintaining pregnancy. A high ratio is also indicative of hormonal imbalances. This ratio is used to assess ovulatory function. A high b-Pregnanediol with low E2 may indicate successful ovulation, however, adequate supplementation of estrogen is needed to maintain pregnancy.

***Cortisol/Cortisone:*** The body's stress hormone, cortisol, is produced by the adrenal glands. Only a small percentage of circulating cortisol is biologically active (free), while the majority of cortisol is inactive (due to the binding of cortisol to protein). Cortisone, a metabolite of cortisol, possess as an additional variable that assists in the diagnosis of various adrenal disorders, including abnormalities of 11-beta-hydroxy steroid dehydrogenase (11-beta HSD), the enzyme that converts cortisol to cortisone. A deficiency in this enzyme can result in increased levels of cortisol. The cortisol/cortisone ratio is a marker of cortisol metabolism and it also used to undertsand efficiency of the conversion of cortisol to cortisone by the 11-beta HSD enzyme.Patients with Cushing's syndrome, chronic stress, or 11-beta HSD deficiency generally have an elevated urinary cortisol/cortisone ratio.

# Hormone Zoomer - Summary

## Hormone Ratios

### SUPPLEMENT SUGGESTIONS

***Vitamin D(600 IU/day):*** Vitamin D supplements decrease cortisol/cortisone levels by modulating the hypothalamic-pituitary-adrenal (HPA) axis, leading to reduced adrenal gland secretion of these hormones. This regulation involves vitamin D receptor (VDR) activation, which influences gene expression associated with cortisol production. Additionally, vitamin D's anti-inflammatory properties can indirectly lower cortisol levels by reducing systemic inflammation.

### SUPPORTIVE SUPPLEMENT SUGGESTIONS *(ENHANCES SPECIFIC ASSOCIATED FUNCTIONS WITHOUT INFLUENCING MARKERS DIRECTLY)*

***Soy isoflavones(30 mg/day):*** Soy isoflavones, such as genistein, inhibit the activity of aromatase, reducing estrogen synthesis. They also act as selective estrogen receptor modulators, which can decrease the formation of 4-OH estradiol. Additionally, they increase the expression of detoxification enzymes, promoting the metabolism and excretion of 4-OH estradiol.

***Pyridoxal 5'-phosphate(30 mg/kg/day):*** Pyridoxal 5'-phosphate, the active form of vitamin B6, decreases breast cancer by modulating gene expression and inhibiting angiogenesis, thus reducing tumor growth. It also enhances the immune response against cancer cells and induces apoptosis.

***Fenugreek seeds extract(600 mg/day):*** Fenugreek seeds extract increases testosterone primarily by inhibiting the enzyme 5-alpha reductase, which reduces testosterone conversion to dihydrotestosterone (DHT). Additionally, it can stimulate Luteinizing Hormone (LH) secretion, enhancing endogenous testosterone production. The active compound saponins in fenugreek also support these effects.

***DHEA():*** DHEA supplements increase testosterone by serving as a precursor hormone that converts into testosterone and other androgens in the body. This conversion mainly occurs in the adrenal glands and gonads through enzymatic processes. As a result, DHEA supplementation can elevate testosterone levels, potentially enhancing anabolic effects and overall hormone balance.

***Vitamin D(600 IU/day):*** Vitamin D supplements increase testosterone by enhancing the expression of testosterone synthesis-related genes in the testes and improving calcium absorption, which is vital for testosterone production. Additionally, Vitamin D receptors in the Leydig cells of the testes facilitate the production of testosterone. This hormone synthesis boost is particularly notable in individuals with Vitamin D deficiency.

## Oxidative Stress

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| 8-hydroxy-2'-deoxyguanosine (8-OHdG) (mcg/g) | 4.44 | | 0 4.77 | ≤4.77 |

## Creatinine

| Test Name | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Creatinine (1st Morning) (mg/ml) | 1.66 | | 0 0.24 2.16 | 0.25-2.16 |
| Creatinine (2nd Morning) (mg/ml) | 0.51 | | 0 0.24 2.16 | 0.25-2.16 |
| Creatinine (Evening) (mg/ml) | 1.47 | | 0 0.24 2.16 | 0.25-2.16 |
| Creatinine (Night) (mg/ml) | 0.53 | | 0 0.24 2.16 | 0.25-2.16 |

# Hormone Zoomer - Summary

## Endocrine Disruptors

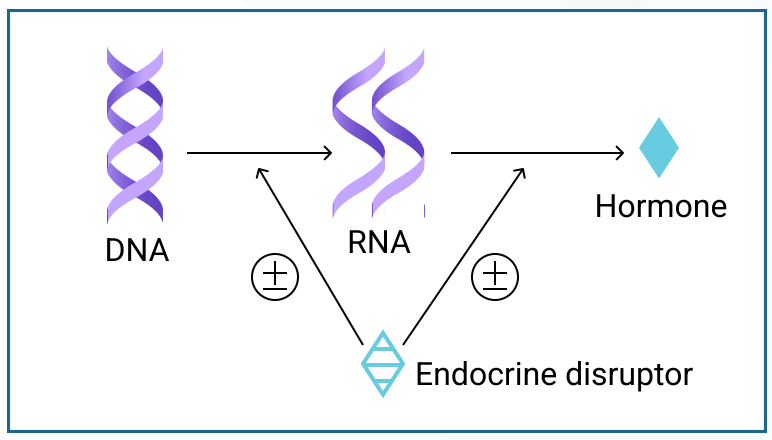
| Test Name | Current | Previous | Result (75th: 0.02, 95th: 0.05) | Reference |
|---|---|---|---|---|
| Atrazine ^ (ug/g) | 0.98 | | | ≤0.05 |

Atrazine is a chlorinated herbicide that prevents pre and post-emergence broadleaf weeds in crops like maize (corn), soybean, and sugarcane, as well as on turf like golf courses and residential lawns. It used to be the most commonly detected pesticide contaminating drinking water. It is an endocrine disruptor and alters the levels of LH, FSH, testosterone, and estrogen. This can result in delayed puberty and reproduction health problems like low sperm motility and changes in the mesntrual cycle. Accumulation of atrazine in the body can affect hormonal function, potentially leading to endocrine disorders and other diseases, which necessitates its elimination to minimize this risk.

### HORMONE AFFECTED

Estrogen, LH, FSH

**Hormone synthesis**




**Mechanism**

The body can control how hormones are made through feedback mechanisms. For thyroid hormones, this process involves a hormone called TSH activating a receptor and the uptake of iodine, along with other intracellular signals that help activate specific enzymes. Proteins and peptide hormones are stored in vesicles after they are made in the body. In the case of steroid hormones, a precursor (prohormone) is turned into an active hormone by various enzymes. However, some chemicals, known as endocrine disruptors (EDCs), can interfere with hormone production; for example, Atrazine has been shown to boost estrogen production in animals, which is linked to lower testosterone levels and higher estrogen levels in the blood. Additionally, Atrazine increases the activity of aromatase, the enzyme responsible for converting testosterone into estrogen.

### SUPPLEMENT SUGGESTIONS

***Lycopene(8 mg/day):*** Lycopene may provide cardioprotective effects and reduce oxidative stress, potentially mitigating atrazine-induced damage, although specific mechanisms against atrazine toxicity are unclear

***Spirulina(3 g/day):*** Spirulina has been shown to reduce oxidative stress and inflammation induced by atrazine (ATZ) in hepatic tissues. It modulates the expression of inflammatory cytokines, up-regulating IL-10 while down-regulating IL-1ß, thereby mitigating hepatotoxic injury.

***Vitamin C(75 mg/day):*** Vitamin C has been shown to ameliorate atrazine-induced oxidative stress and inflammation in hepatic tissues. It helps regulate liver function biomarkers and counteracts apoptosis by enhancing antioxidant defenses.

***Soybean(25 g/day):*** The protective effects of soybeans against atrazine toxicity are not well-documented; however, their isoflavones may provide some antioxidant benefits that could theoretically mitigate oxidative stress.

***Quercetin(500 mg/day):*** Quercetin exhibits antioxidant properties that may help reduce oxidative stress and inflammation caused by atrazine exposure, although specific protective effects against atrazine toxicity require further investigation.

***Vitamin E(22 IU/day ):*** Vitamin E is known for its antioxidant effects, which can help protect against oxidative damage induced by atrazine; however, specific studies demonstrating its efficacy against atrazine toxicity are limited.

***Melatonin(10 mg/day):*** Melatonin may help mitigate oxidative stress and inflammation associated with atrazine exposure through its antioxidant properties, but specific evidence regarding its protective role against atrazine toxicity is lacking.

***Ginger(15 mg/day):*** The potential protective effects of ginger against atrazine toxicity are not well-established; however, its anti-inflammatory and antioxidant properties may offer some benefits in reducing oxidative stress related to atrazine exposure.

# Hormone Zoomer - Summary

## Endocrine Disruptors

### SUPPLEMENT SUGGESTIONS

***Curcumin(500 mg/day):*** Curcumin has shown protective effects against atrazine-induced testicular toxicity by enhancing reproductive hormone levels and improving histological features in studies involving co-treatment with quercetin.

# Hormone Zoomer - Summary

## Endocrine Disruptors

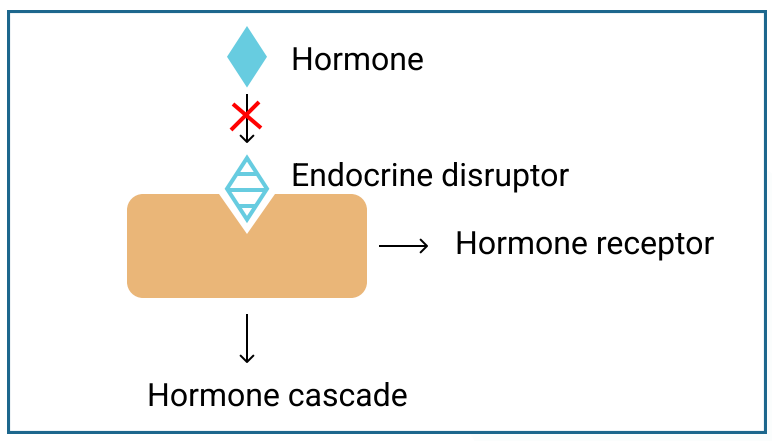
| Test Name | Current | Previous | Result (75th: 0.25, 95th: 4.39) | Reference |
|---|---|---|---|---|
| Butylparaben^ (ug/g) | 0.45 | | | ≤4.39 |

Butylparaben belongs to the paraben family and is one of the most common antimicrobial preservatives in cosmetics such as such as makeup, moisturizers, hair-care products, and shaving creams. It is also used in medication suspensions, and as a flavoring additive in food. When exposed to high levels of butylparaben via inhalation, irritation to the respiratory tract results; symptoms include coughing and shortness of breath. Ingestion of large doses of butylparaben may cause irritation to the gastrointestinal (GI) tract. Butylparaben is an endocrine disruptor. In animal models, butylparaben increased the levels of TSH and T4. They also reduced the levels of estrogen and estrogen/Progesterone ratio. Parabens bind to estrogen receptors and mimic its activity, which can lead to fertility problems. Accumulation of butylparaben in the body can therefore, affect hormonal function, potentially leading to endocrine disorders and other diseases, which necessitates its elimination to minimize this risk.

### HORMONE AFFECTED

Estrogen, Progesterone, TSH, T4

**Agonist (mimics hormone function)**




**Mechanism**

Hormone agonists mimic natural hormones by acting like them. They bind to hormone receptors and trigger similar biological responses. Endocrine-disrupting chemicals (EDCs) act as these mimics, potentially causing harmful effects; Parabens bind to estrogen receptors, imitating estrogen's function and amplifying its effects. This increases breast cell growth, raising concerns about their potential role in breast cancer. Parabens also block the enzyme 17β-hydroxysteroid dehydrogenase, which regulates the conversion between estradiol and estrone, disrupting hormonal balance.

### SUPPORTIVE SUPPLEMENT SUGGESTIONS *(ENHANCES SPECIFIC ASSOCIATED FUNCTIONS WITHOUT INFLUENCING MARKERS DIRECTLY)*

***Vitamin E(22 IU/day ):*** Vitamin E through its antioxidant properties protect cells from oxidative damage by neutralizing ROS generated during toxin exposure. It also enhances the activity of other antioxidants and improves hormonal balance, thereby mitigating reproductive and cellular dysfunction caused by endocrine disruptors.

***Vitamin C(75 mg/day):*** Vitamin C protects against various toxicities, including arsenic and glyphosate, by acting as a potent antioxidant that scavenges reactive oxygen species (ROS) and restores antioxidant enzyme levels. It also enhances detoxification processes, facilitating the elimination of harmful compounds from the body. Additionally, high serum levels of vitamin C are associated with decreased prevalence of elevated blood lead levels, indicating its role in mitigating heavy metal toxicity.

***Iodine(120 mcg/day):*** Iodine prevents exposure to endocrine disruptors by acting as an antioxidant, neutralizing reactive oxygen species (ROS) and reducing oxidative stress that can lead to hormonal imbalances. It supports thyroid hormone synthesis, which is crucial for maintaining metabolic and hormonal balance in the body. Additionally, iodine can induce apoptosis in cancer cells and modulate immune responses, further protecting against the disruptive effects of environmental toxins.

Patient Name: **DEMO DEMO**
Date of Birth: **05-06-1974** Accession ID: **2664704445**
Service Date: **2024-03-21 01:00 (PST)**

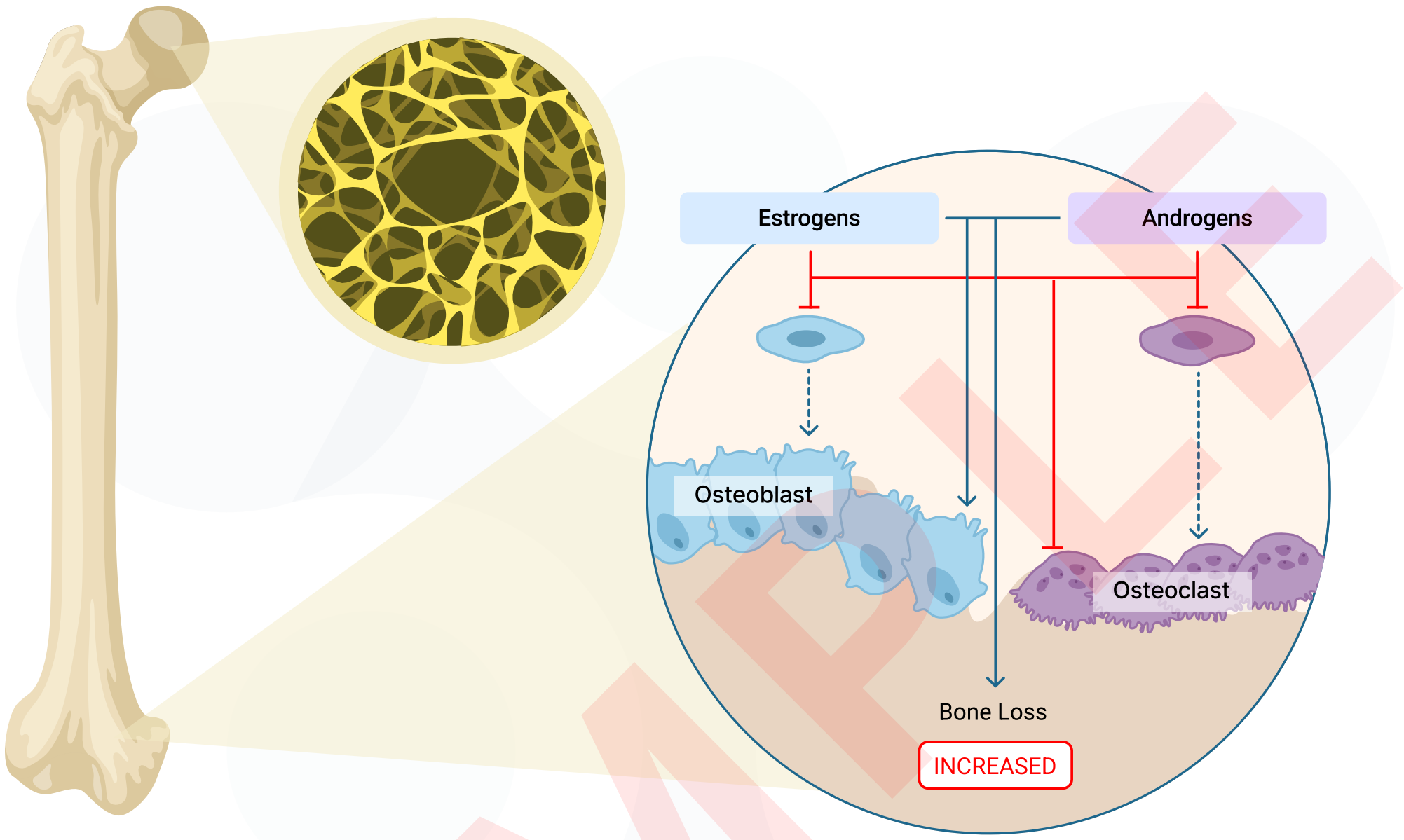
# Hormone Zoomer - Summary

## Endocrine Disruptors

| Test Name | Current | Previous | Result (75th / 95th) | Reference |
|---|---|---|---|---|
| Perchlorate (PERC)^ (ug/g) | 4.30 | | 4.89 / 10.7 | ≤10.7 |
| Glyphosate (ug/g) | 0.56 | | 1.65 / 7.6 | ≤7.6 |
| Mono-ethyl phthalate (MEtP)^ (ug/g) | 0.94 | | 94.2 / 541 | ≤541 |
| Mono-2-ethylhexyl phthalate (MEHP)^ (ug/g) | 0.92 | | 2.73 / 8.47 | ≤8.47 |
| Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)^ (ug/g) | 2.89 | | 14.1 / 37.7 | ≤37.7 |
| Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)^ (ug/g) | 0.08 | | 8.99 / 23.4 | ≤23.4 |
| Methylparaben^ (ug/g) | 0.08 | | 180 / 653 | ≤653 |
| Propylparaben^ (ug/g) | 0.03 | | 36.7 / 222 | ≤222 |
| Ethylparaben ^ (ug/g) | 0.04 | | 5.41 / 99.3 | ≤99.3 |
| Bisphenol A (BPA)^ (ug/g) | 1.46 | | 2.12 / 5.09 | ≤5.09 |
| Triclosan (TCS)^ (ug/g) | 8.41 | | 29.9 / 358 | ≤358 |

# Hormone Zoomer - Summary

## Bone Health




| Test Name | Current | Previous | Reference | Test Name | Current | Previous | Reference |
|---|---|---|---|---|---|---|---|
| Deoxypyridinoline (DPD) (nmol/mmol) | 18.60 | | | Pyridinoline (PYD) (nmol/mmol) | 30.00 | | |

### COMMENTS

***Deoxypyridinoline (DPD):*** Deoxypyridinoline (DPD) is a molecule that provides structural stiffness to collagen type I found in bones. It stabilizes collagen by forming crosslinks between individual collagen peptides. Crosslinked collagen is broken down during bone resorption, and DPD crosslinks are released into circulation. DPD is excreted through urine and is recognized as an important biomarker of bone collagen degradation. Hormones such as estrogen and testosterone play a crucial role in maintaining bone health by regulating bone formation and resorption. An imbalance in these hormones, such as decreased estrogen levels during menopause, can lead to increased bone loss and a higher risk of osteoporosis and fractures. This makes assessing bone health essential, with high levels of DPD in urine potentially indicating osteoporosis, Paget's disease, or hyperthyroidism.

### SUPPLEMENT SUGGESTIONS

***Calcium(1500 mg/day):*** Calcium supplementation reduces bone resorption by inhibiting osteoclast activity, leading to decreased collagen breakdown. Calcium MCHC is a more bioavailable form of calcium and includes phosphorus, collagen and other minerals and is a preferred version for better absorption. This supplementation lowers the release of deoxypyridinoline (DPD) into circulation. As a result, urinary DPD levels, a marker of bone degradation, decreases.

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## Bone Health

### SUPPLEMENT SUGGESTIONS

***Soy flavones(56 mg/day):*** Soy isoflavones decrease urinary deoxypyridinoline (DPD) by inhibiting bone resorption through estrogen receptor activation, leading to reduced osteoclast activity. This suppression decreases collagen breakdown, lowering DPD levels. Additionally, isoflavones promote bone formation, further reducing bone turnover.

***RNAse-enriched-Lactoferrin (R-ELF)(125 mg/day):*** RNAse-enriched-Lactoferrin (R-ELF) inhibits osteoclast activity, reducing bone resorption and consequently lowering urinary deoxypyridinoline (DPD), a marker of collagen breakdown. R-ELF also promotes osteoblast differentiation, enhancing bone formation.

***Genistein(54 mg/day):*** Genistein decreases urinary deoxypyridinoline (DPD) by inhibiting osteoclast activity, leading to reduced bone resorption. It modulates estrogen receptors and promotes osteoblast differentiation, enhancing bone formation. This dual action lowers collagen degradation markers like DPD in urine.

# Hormone Zoomer - Summary

## Suggestions

### Cortisol

SUPPLEMENTS

**Galactooligosaccharides** 5.5 g/day

Galactooligosaccharides (GOS) modulate the gut microbiota, promoting the growth of beneficial bacteria such as Bifidobacterium and Lactobacillus. These microbes enhance gut barrier integrity and stimulate the production of short-chain fatty acids, which influence the gut–brain axis and reduce hypothalamic–pituitary–adrenal (HPA) axis reactivity. As a result, the waking cortisol response is decreased through lowered stress signaling and improved neuroendocrine regulation.

**Polyphenol-rich dark chocolate** 25 g/day

Polyphenol-rich chocolate inhibits 11β-HSD1, the enzyme that converts cortisone to active cortisol. This reduces regeneration of cortisol, lowering salivary cortisol levels. As a result, the cortisol:cortisone ratio decreases, supporting balanced circadian cortisol patterns.

### Cortisone

SUPPLEMENTS

**Liquorice** 50 mg/day

Liquorice decreases salivary cortisone through glycyrrhetinic acid, its active metabolite. Glycyrrhetinic acid inhibits 11β-hydroxysteroid dehydrogenase type 2 (11β-HSD2), which normally converts cortisol to cortisone. This inhibition leads to reduced cortisone levels and a relative increase in cortisol. The shift in cortisol:cortisone ratio reflects suppressed cortisone regeneration due to enzyme blockade.

**Melatonin** 5 mg/day

Melatonin supports circadian regulation and promotes restorative sleep by modulating elevated nocturnal cortisone levels. Supplementation helps normalize HPA axis signaling, reducing hyperarousal and stress-related insomnia. By aligning the body's internal clock, melatonin improves sleep onset, continuity, and overall sleep quality.

### Adrenal Hormones

SUPPLEMENTS

**Vitamin E** 22 IU/day

Vitamin E increases corticosterone levels by enhancing antioxidant defenses, which protect the adrenal cortex from oxidative stress, thereby supporting steroidogenesis. This reduces lipid peroxidation and stabilizes cell membranes, facilitating the synthesis and release of corticosterone. Additionally, Vitamin E modulates signaling pathways involved in adrenal hormone production.

**N-Acetylcysteine (NAC)** 600 mg/day

N-Acetylcysteine (NAC) increases corticosterone by boosting glutathione levels, which reduces oxidative stress and enhances adrenal gland function. This improved adrenal function promotes the synthesis and release of corticosterone. Additionally, NAC influences the hypothalamic-pituitary-adrenal (HPA) axis, leading to increased corticosterone production.

### Diurnal Cortisol

SUPPLEMENTS

**Magnesium** 350 mg/day

Magnesium supplements decrease cortisol by regulating the hypothalamic-pituitary-adrenal (HPA) axis, which controls stress response. Magnesium acts as a cofactor for enzymes involved in neurotransmitter synthesis, promoting GABA activity, and reducing excessive neuronal firing, which helps lower cortisol production. Additionally, magnesium enhances sleep quality, further reducing cortisol levels.

**Vitamin C** 1500 mg/day

Vitamin C supplementation decreases cortisol levels by reducing the secretion of cortisol in response to stress. It supports the adrenal glands, which produce cortisol, thereby improving their function and reducing excessive cortisol release. Additionally, vitamin C acts as an antioxidant, mitigating oxidative stress that can stimulate cortisol production.

# Hormone Zoomer - Summary

## Suggestions

### Diurnal Cortisol

SUPPLEMENTS

**Ashwagandha** 600 mg/day

Ashwagandha or its root extract decreases cortisol by inhibiting the activity of the hypothalamic-pituitary-adrenal (HPA) axis, leading to reduced adrenal cortisol production. It enhances the resilience of the body to stress, promoting homeostasis and lowering cortisol levels. Additionally, ashwagandha's bioactive compounds modulate neurotransmitter activity, further aiding in stress reduction.

**Tangeretin** 200 mg/day

Tangeretin, a polymethoxylated flavone found in citrus peels, decreases cortisol levels by inhibiting the enzyme 11β-hydroxysteroid dehydrogenase type 1 (11β-HSD1), which converts inactive cortisone to active cortisol. This inhibition reduces the overall production of cortisol within tissues. Additionally, tangeretin's antioxidant properties may mitigate stress-induced cortisol secretion, further lowering cortisol levels in the body.

### Diurnal Melatonin

SUPPLEMENTS

**Caffeine** 200 mg/day

Caffeine is metabolized in the liver by cytochrome P450 (CYP)1A2, which also metabolizes melatonin. By competing for the same enzyme, caffeine reduces melatonin breakdown, leading to higher nighttime melatonin levels. This interaction was confirmed in a study where participants showed a 32% increase in melatonin after caffeine ingestion compared to placebo.

### Estrogen

SUPPLEMENTS

**Soy** 40 mg/day

Soy supplements contain phytoestrogens like genistein, which compete with estrone for estrogen receptors, reducing estrone's effects. These compounds also influence estrogen metabolism, leading to lower circulating estrone levels. The combined impact helps to modulate estrogenic activity in the body.

**Wheat bran** 10 g/day

Wheat bran increases dietary fiber intake, which binds estrogens and enhances their excretion through the feces. This process reduces the enterohepatic recirculation of estrogens, leading to lower serum estrone levels. Consequently, decreased serum estrone can also reduce urinary estrone excretion.

**Soy isoflavones** 30 mg/day

Soy isoflavones, such as genistein, inhibit the activity of aromatase, reducing estrogen synthesis. They also act as selective estrogen receptor modulators, which can decrease the formation of 4-OH estradiol. Additionally, they increase the expression of detoxification enzymes, promoting the metabolism and excretion of 4-OH estradiol.

**Vitamin D** 600 IU/day

Vitamin D supplements can lower estradiol levels by promoting the expression of enzymes that convert estradiol to its less active metabolites. This process is mediated through the regulation of estrogen metabolism and the modulation of estrogen receptor activity. Consequently, increased vitamin D levels can indirectly reduce estradiol availability for 2-hydroxylation. Together, these mechanisms can contribute to lower circulating and urinary levels of 2-hydroxyestradiol, potentially reducing estrogen-related proliferative activity.

# Hormone Zoomer - Summary

## Suggestions

### Testosterone

SUPPLEMENTS

**Chromium picolinate** 200 µg/day

Chromium picolinate enhances insulin sensitivity by facilitating glucose metabolism, which helps regulate blood sugar levels. This, in turn, can reduce elevated androgen levels linked to hirsutism. Improved insulin sensitivity may contribute to decreased hair growth in individuals with insulin resistance-related hirsutism.

**Calcium and vitamin D (Ca/Vit.D)** 1,000 mg of calcium

Calcium and vitamin D supplements prevent hirsutism by maintaining adequate calcium levels and enhancing vitamin D absorption, which are crucial for proper hormonal balance. Vitamin D helps regulate androgen levels, while calcium supports overall endocrine function. This combined action helps mitigate the excessive hair growth associated with hirsutism.

**Melatonin** 5 mg/day

Melatonin supplements help prevent hirsutism by regulating androgen levels and reducing the activity of hair growth-promoting hormones. Additionally, melatonin exhibits anti-inflammatory effects that can address underlying conditions contributing to excessive hair growth. This combined action helps manage and mitigate the symptoms associated with hirsutism.

### Hormone Ratios

SUPPLEMENTS

**Vitamin D** 600 IU/day

Vitamin D supplements decrease cortisol/cortisone levels by modulating the hypothalamic-pituitary-adrenal (HPA) axis, leading to reduced adrenal gland secretion of these hormones. This regulation involves vitamin D receptor (VDR) activation, which influences gene expression associated with cortisol production. Additionally, vitamin D's anti-inflammatory properties can indirectly lower cortisol levels by reducing systemic inflammation.

**Soy isoflavones** 30 mg/day

Soy isoflavones, such as genistein, inhibit the activity of aromatase, reducing estrogen synthesis. They also act as selective estrogen receptor modulators, which can decrease the formation of 4-OH estradiol. Additionally, they increase the expression of detoxification enzymes, promoting the metabolism and excretion of 4-OH estradiol.

**Pyridoxal 5'-phosphate** 30 mg/kg/day

Pyridoxal 5'-phosphate, the active form of vitamin B6, decreases breast cancer by modulating gene expression and inhibiting angiogenesis, thus reducing tumor growth. It also enhances the immune response against cancer cells and induces apoptosis.

**Fenugreek seeds extract** 600 mg/day

Fenugreek seeds extract increases testosterone primarily by inhibiting the enzyme 5-alpha reductase, which reduces testosterone conversion to dihydrotestosterone (DHT). Additionally, it can stimulate Luteinizing Hormone (LH) secretion, enhancing endogenous testosterone production. The active compound saponins in fenugreek also support these effects.

**DHEA**

DHEA supplements increase testosterone by serving as a precursor hormone that converts into testosterone and other androgens in the body. This conversion mainly occurs in the adrenal glands and gonads through enzymatic processes. As a result, DHEA supplementation can elevate testosterone levels, potentially enhancing anabolic effects and overall hormone balance.

**Vitamin D** 600 IU/day

Vitamin D supplements increase testosterone by enhancing the expression of testosterone synthesis-related genes in the testes and improving calcium absorption, which is vital for testosterone production. Additionally, Vitamin D receptors in the Leydig cells of the testes facilitate the production of testosterone. This hormone synthesis boost is particularly notable in individuals with Vitamin D deficiency.

# Hormone Zoomer - Summary

## Suggestions

### Endocrine Disruptors

SUPPLEMENTS

**Lycopene** 8 mg/day

Lycopene may provide cardioprotective effects and reduce oxidative stress, potentially mitigating atrazine-induced damage, although specific mechanisms against atrazine toxicity are unclear

**Spirulina** 3 g/day

Spirulina has been shown to reduce oxidative stress and inflammation induced by atrazine (ATZ) in hepatic tissues. It modulates the expression of inflammatory cytokines, up-regulating IL-10 while down-regulating IL-1ß, thereby mitigating hepatotoxic injury.

**Vitamin C** 75 mg/day

Vitamin C has been shown to ameliorate atrazine-induced oxidative stress and inflammation in hepatic tissues. It helps regulate liver function biomarkers and counteracts apoptosis by enhancing antioxidant defenses.

**Soybean** 25 g/day

The protective effects of soybeans against atrazine toxicity are not well-documented; however, their isoflavones may provide some antioxidant benefits that could theoretically mitigate oxidative stress.

**Quercetin** 500 mg/day

Quercetin exhibits antioxidant properties that may help reduce oxidative stress and inflammation caused by atrazine exposure, although specific protective effects against atrazine toxicity require further investigation.

**Vitamin E** 22 IU/day

Vitamin E is known for its antioxidant effects, which can help protect against oxidative damage induced by atrazine; however, specific studies demonstrating its efficacy against atrazine toxicity are limited.

**Melatonin** 10 mg/day

Melatonin may help mitigate oxidative stress and inflammation associated with atrazine exposure through its antioxidant properties, but specific evidence regarding its protective role against atrazine toxicity is lacking.

**Ginger** 15 mg/day

The potential protective effects of ginger against atrazine toxicity are not well-established; however, its anti-inflammatory and antioxidant properties may offer some benefits in reducing oxidative stress related to atrazine exposure.

**Curcumin** 500 mg/day

Curcumin has shown protective effects against atrazine-induced testicular toxicity by enhancing reproductive hormone levels and improving histological features in studies involving co-treatment with quercetin.

**Iodine** 120 mcg/day

Iodine prevents exposure to endocrine disruptors by acting as an antioxidant, neutralizing reactive oxygen species (ROS) and reducing oxidative stress that can lead to hormonal imbalances. It supports thyroid hormone synthesis, which is crucial for maintaining metabolic and hormonal balance in the body. Additionally, iodine can induce apoptosis in cancer cells and modulate immune responses, further protecting against the disruptive effects of environmental toxins.

### Bone Health

SUPPLEMENTS

**Calcium** 1500 mg/day

Calcium supplementation reduces bone resorption by inhibiting osteoclast activity, leading to decreased collagen breakdown. Calcium MCHC is a more bioavailable form of calcium and includes phosphorus, collagen and other minerals and is a preferred version for better absorption. This supplementation lowers the release of deoxypyridinoline (DPD) into circulation. As a result, urinary DPD levels, a marker of bone degradation, decreases.

## Suggestions

### Bone Health

SUPPLEMENTS

**Soy flavones** 56 mg/day

Soy isoflavones decrease urinary deoxypyridinoline (DPD) by inhibiting bone resorption through estrogen receptor activation, leading to reduced osteoclast activity. This suppression decreases collagen breakdown, lowering DPD levels. Additionally, isoflavones promote bone formation, further reducing bone turnover.

**RNAse-enriched-Lactoferrin (R-ELF)** 125 mg/day

RNAse-enriched-Lactoferrin (R-ELF) inhibits osteoclast activity, reducing bone resorption and consequently lowering urinary deoxypyridinoline (DPD), a marker of collagen breakdown. R-ELF also promotes osteoblast differentiation, enhancing bone formation.

**Genistein** 54 mg/day

Genistein decreases urinary deoxypyridinoline (DPD) by inhibiting osteoclast activity, leading to reduced bone resorption. It modulates estrogen receptors and promotes osteoblast differentiation, enhancing bone formation. This dual action lowers collagen degradation markers like DPD in urine.

Patient Name: **DEMO DEMO**
Date of Birth: **05-06-1974** Accession ID: **2664704445**
Service Date: **2024-03-21 01:00 (PST)**

# Hormone Zoomer

## Cortisol Awakening Response

| Cortisol | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Saliva Cortisol – Waking (M) (ng/mL) | 5.60 | | 0.01 2.19 5.2 | 2.2-5.2 |
| Saliva Cortisol – W +60 min. (ng/mL) | 5.20 | | 0.01 3.09 6.5 | 3.1-6.5 |
| Saliva Cortisol – Evening (ng/ml) | 2.50 | | 0 0.99 2.6 | 1.0-2.6 |
| Saliva Cortisol – Night (ng/ml) | 0.92 | | 0 0.49 1.1 | 0.5-1.1 |
| Saliva Cortisol Total (ng/mL) | 13.00 | | 0.01 10.9 24 | 11.0-24.0 |
| Saliva Cortisol – Insomnia (ng/mL) | 0.80 | | 0.01 0.49 1.1 | 0.5-1.1 |
| Saliva Cortisol – W+30 min. (ng/mL) | 7.40 | | 0.01 4.19 10.6 | 4.2-10.6 |

| Cortisone | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Saliva Cortisone – Waking (M) (ng/mL) | 8.90 | | 0.01 5.49 14.3 | 5.5-14.3 |
| Saliva Cortisone – W +60 min. (ng/mL) | 15.10 | | 0.01 7.19 22.5 | 7.2-22.5 |
| Saliva Cortisone – Evening (ng/ml) | 17.80 | | 0 3.19 6.8 | 3.2-6.8 |
| Saliva Cortisone – Night (ng/ml) | 15.40 | | 0 1.29 3.4 | 1.3-3.4 |
| Saliva Cortisone Total (ng/mL) | 78.10 | | 0.01 33.9 65 | 34.0-65.0 |
| Saliva Cortisone – Insomnia (ng/mL) | 7.30 | | 0.01 1.29 3.4 | 1.3-3.4 |
| Saliva Cortisone – W+30 min. (ng/mL) | 13.60 | | 0.01 10.2 28.7 | 10.3-28.7 |

## Hormone Zoomer

| Adrenal Hormones | Current | Previous | Result | Reference |
|---|---|---|---|---|
| b-Tetrahydrocortisol (b-THF) (mcg/g) | 670.63 | | 0 265 729 | 265.2-729.3 |
| a-Tetrahydrocortisol (a-THF) (mcg/g) | 24.43 | | 0 18.1 79.2 | 18.12-79.22 |
| b-Tetrahydrocortisone (b-THE) (mcg/g) | 955.32 | | 0 598 1511 | 598.36-1511.23 |
| Deoxycorticosterone (mcg/g) | 1.49 | | 0 0.64 2.18 | 0.65-2.18 |
| Corticosterone (mcg/g) | 3.32 | | 0 3.65 10.1 | 3.66-10.12 |
| DHEA (mcg/g) | 27.29 | | 0 6.76 42.1 | 6.77-42.11 |

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# Hormone Zoomer

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| Adrenal Hormones | Current | Previous | Result | Reference |
|---|---|---|---|---|
| DHEA-S (mcg/g) | 12.11 | | 0 5.21 31.7 | 5.22-31.78 |
| Metabolized Cortisol (THF+THE) (mcg/g) | 1650.38 | | 0 881 2319 | 881.68-2319.75 |
| Total Cortisol (mcg/g) | 36.91 | | 0 13.0 40.1 | 13.05-40.11 |
| Total Cortisone (mcg/g) | 37.05 | | 0 24.3 45.3 | 24.33-45.36 |

| Bone Health | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Deoxypyridinoline (DPD) (nmol/mmol) | 18.60 | | 0 2.59 8.7 | 2.6-8.7 |
| Pyridinoline (PYD) (nmol/mmol) | 30.00 | | 0 20 40 | 20-40 |

| Creatinine | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Creatinine (1st Morning) (mg/ml) | 1.66 | | 0 0.24 2.16 | 0.25-2.16 |
| Creatinine (2nd Morning) (mg/ml) | 0.51 | | 0 0.24 2.16 | 0.25-2.16 |
| Creatinine (Evening) (mg/ml) | 1.47 | | 0 0.24 2.16 | 0.25-2.16 |
| Creatinine (Night) (mg/ml) | 0.53 | | 0 0.24 2.16 | 0.25-2.16 |

| Diurnal Cortisol | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Free Cortisol (1st Morning) (mcg/g) | 33.20 | | 0 7.49 36.2 | 7.5-36.2 |
| Free Cortisol (2nd Morning) (mcg/g) | 48.31 | | 0 24.8 66.4 | 24.9-66.4 |
| Free Cortisol (Evening) (mcg/g) | 15.05 | | 0 6.09 18.9 | 6.1-18.9 |
| Free Cortisol (Night) (mcg/g) | 15.75 | | 0 3.19 9.2 | 3.2-9.2 |
| Free Cortisol (pooled) (mcg/g) | 28.08 | | 0 10.4 32.6 | 10.43-32.68 |

| Diurnal Cortisone | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Free Cortisone (1st Morning) (mcg/g) | 51.97 | | 0 32.6 95.8 | 32.7-95.8 |
| Free Cortisone (2nd Morning) (mcg/g) | 82.45 | | 0 63.0 179 | 63.1-179.2 |
| Free Cortisone (Evening) (mcg/g) | 34.78 | | 0 34.4 95.6 | 34.5-95.6 |
| Free Cortisone (Night) (mcg/g) | 17.26 | | 0 11.1 40.9 | 11.2-40.9 |

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# Hormone Zoomer

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| Diurnal Cortisone | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Free Cortisone (pooled) (mcg/g) | 46.62 | | 0 35.3 102 | 35.38-102.88 |

| Diurnal Melatonin | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Melatonin (1st Morning) (mcg/g) | 117.24 | | 0 17.4 40.2 | 17.5-40.2 |
| Melatonin (2nd Morning) (mcg/g) | 27.23 | | 0 7.09 32.6 | 7.1-32.6 |
| Melatonin (Evening) (mcg/g) | 1.43 | | 0 0.86 2 | 0.87-2.0 |
| Melatonin (Night) (mcg/g) | 10.50 | | 0 1.89 12.3 | 1.9-12.3 |

| Endocrine Disruptors | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Atrazine ^ (ug/g) | 0.98 | | 0 0.02 0.05 | ≤0.05 |
| Butylparaben^ (ug/g) | 0.45 | | 0 0.25 4.39 | ≤4.39 |
| Perchlorate (PERC)^ (ug/g) | 4.30 | | 0 4.89 10.7 | ≤10.7 |
| Glyphosate (ug/g) | 0.56 | | 0 1.65 7.6 | ≤7.6 |
| Mono-ethyl phthalate (MEtP)^ (ug/g) | 0.94 | | 0 94.2 541 | ≤541 |
| Mono-2-ethylhexyl phthalate (MEHP)^ (ug/g) | 0.92 | | 0 2.73 8.47 | ≤8.47 |
| Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)^ (ug/g) | 2.89 | | 0 14.1 37.7 | ≤37.7 |
| Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)^ (ug/g) | 0.08 | | 0 8.99 23.4 | ≤23.4 |
| Methylparaben^ (ug/g) | 0.08 | | 0 180 653 | ≤653 |
| Propylparaben^ (ug/g) | 0.03 | | 0 36.7 222 | ≤222 |
| Ethylparaben ^ (ug/g) | 0.04 | | 0 5.41 99.3 | ≤99.3 |
| Bisphenol A (BPA)^ (ug/g) | 1.46 | | 0 2.12 5.09 | ≤5.09 |
| Triclosan (TCS)^ (ug/g) | 8.41 | | 0 29.9 358 | ≤358 |

| Estrogen | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Estradiol (E2) (mcg/g) | 0.34 | | 0 0.17 0.81 | 0.18-0.81 |
| Estrone (E1) (mcg/g) | 6.34 | | 0 0.59 2.6 | 0.6-2.6 |

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# Hormone Zoomer

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| Estrogen | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Estriol (E3) (mcg/g) | 0.80 | | 0 0.23 1.25 | 0.24-1.25 |
| Total Estrogen (mcg/g) | 9.98 | | 0 5.41 16.1 | 5.42-16.13 |
| 2-OH Estradiol (mcg/g) | 0.48 | | 0 0.07 0.29 | 0.08-0.29 |
| 2-OH Estrone (mcg/g) | 0.88 | | 0 0.27 1.2 | 0.28-1.2 |
| 4-OH Estradiol (mcg/g) | 0.32 | | 0 0.02 0.15 | 0.03-0.15 |
| 4-OH Estrone (mcg/g) | 0.65 | | 0 0.04 0.23 | 0.05-0.23 |
| 16a-OH Estrone (mcg/g) | 0.25 | | 0 0.14 0.48 | 0.15-0.48 |
| 2-MeO Estradiol (mcg/g) | 0.04 | | 0 0.01 0.09 | 0.02-0.09 |
| 2-MeO Estrone (mcg/g) | 0.25 | | 0 0.08 0.34 | 0.09-0.34 |
| 4-MeO Estradiol (mcg/g) | 0.04 | | 0 0.05 | ≤0.05 |
| 4-MeO Estrone (mcg/g) | 0.10 | | 0 0.05 | ≤0.05 |

| Hormone Ratios | Current | Previous | Result | Reference |
|---|---|---|---|---|
| E3/(E1+E2) Ratio | 0.12 | | 0 0.4 | ≤0.4 |
| 2-OH (E1 + E2)/16a-OH E1 | 5.44 | | 0 1.19 5.7 | 1.2-5.7 |
| 2-OH E1 /4-OH E1 | 6.0 | | 0 2.4 8.7 | 2.5-8.7 |
| 2-MeO E1/2-OH E1 | 0.28 | | 0 0.19 0.4 | 0.2-0.4 |
| 4-MeO E1/4-OH E1 | 0.71 | | 0 0.1 0.23 | 0.11-0.23 |
| 4-MeO E2/4-OH E2 | 0.13 | | 0 0.24 0.42 | 0.25-0.42 |
| T/Epi-T | 1.32 | | 0 1.49 4.3 | 1.5-4.3 |
| b-Pregnanediol/E2 | 649.09 | | 0 226 277 | 226.67-277.41 |
| Cortisol/Cortisone (mcg/g) | 1.00 | | 0 0.53 0.88 | 0.54-0.88 |

| Oxidative Stress | Current | Previous | Result | Reference |
|---|---|---|---|---|
| 8-hydroxy-2'-deoxyguanosine (8-OHdG) (mcg/g) | 4.44 | | 0 4.77 | ≤4.77 |

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# Hormone Zoomer

## Hormone Zoomer

| Progesterone | Current | Previous | Result | Reference |
|---|---|---|---|---|
| Allopregnanolone (mcg/g) | 0.94 | | 0 0.3 1.38 | 0.31-1.38 |
| 3αDihydroprogesterone (mcg/g) | 0.35 | | 0 0.11 0.91 | 0.12-0.91 |
| 20αDihydroprogesterone (mcg/g) | 5.17 | | 0 0.62 5.66 | 0.63-5.66 |
| b-Pregnanediol (mcg/g) | 220.69 | | 0 40.7 224 | 40.8-224.7 |
| a-Pregnanediol (mcg/g) | 55.94 | | 0 20.2 100 | 20.3-100.2 |
| **Testosterone** | **Current** | **Previous** | **Result** | **Reference** |
| Testosterone (T) (mcg/g) | 2.91 | | 0 0.77 3.11 | 0.78-3.11 |
| Epi-Testosterone (Epi-T) (mcg/g) | 0.54 | | 0 0.34 1.25 | 0.35-1.25 |
| Androstenedione (mcg/g) | 4.11 | | 0 2.57 7.44 | 2.58-7.44 |
| Androsterone (mcg/g) | 329.34 | | 0 142 500 | 142.6-500.8 |
| Etiocholanolone (mcg/g) | 599.29 | | 0 260 805 | 260.3-805.1 |
| 5a-DHT (mcg/g) | 0.55 | | 0 0.33 1.05 | 0.34-1.05 |
| 5a,3a-Androstanediol (mcg/g) | 16.65 | | 0 2.45 8.59 | 2.46-8.59 |
| 5b-Androstanediol (mcg/g) | 7.20 | | 0 4.14 15.6 | 4.15-15.66 |

## Risk and Limitations

This test has been developed and its performance characteristics determined and validated by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration. Vibrant Wellness provides additional contextual information on these tests and provides the report in more descriptive fashion.

Hormone Zoomer testing is performed at Vibrant America and utilizing effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific test due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

Tested individuals should not change their diet, physical activity, or any medical treatments they are currently using based on the results without consulting their personal health care provider. The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions. Tested individuals may find their experience is not consistent with Vibrant's selected peer reviewed scientific research findings of relative improvement for study groups. Science in this area is still developing, and many personal health factors affect diet and health. Since subjects in the scientific studies referenced in this report may have had personal health and other factors different from those of tested individuals, results from these studies may not be representative of the results experienced by tested individuals. Further, some recommendations may or may not be attainable, depending on the tested individual's physical ability or other personal health factors. A limitation of this testing is that many of these scientific studies may have been performed in selected populations only. The interpretations and recommendations are done in the context of these studies, but the results may or may not be relevant to tested individuals of different or mixed ethnicities. Please note that pediatric ranges have not been established for these tests. Interference studies have not been established for individuals on immunosuppressive drugs.

Based on test results and other medical knowledge of the tested individual, health care providers might consider additional independent testing, or consult another health care provider or a genetic counselor. The suggested supplements and dosages in this report are based on current research and are not intended as medical advice. Individual needs may vary, and these suggestions should not replace professional medical guidance. Consult with a qualified healthcare provider before starting any new supplement regimen, especially if you have pre-existing health conditions or are taking medications. For specific scientific references supporting these suggestions, please contact our support team.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute medical advice and are not a substitute for professional medical advice. Please consult your healthcare practitioner with questions regarding test results, or before beginning any course of supplementation, dietary or lifestyle changes.

The supplement recommendations and dosage guidelines provided are intended for general informational purposes only and should not replace professional medical advice; final dosage decisions must be made in consultation with your healthcare provider. Vibrant disclaims any liability for adverse effects, outcomes, or consequences arising from the use of these suggestions.

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