

## ANDERSON,KEMBERLI

DOB: 10/19/1965  
Sex: F  
Phone: (858) 213-1101  
Patient ID: 671

Age: 57  
Fasting:

Specimen: ZD116807S  
Requisition: 0000340  
Report Status: FINAL / SEE REPORT

Collected: 09/11/2023 10:56  
Received: 09/11/2023 11:07  
Reported: 09/21/2023 15:52

Client #: 90211414  
HERBST,KAREN L  
JAIME SCHWARTZ, MD  
240A S LA CIENEGA BLVD # 200  
BEVERLY HILLS, CA 90211-3302  
Phone: (310) 882-5454  
Fax: (310) 882-5454

COLLECTION KIT GIVEN TO PATIENT. PATIENT ADVISED TO RETURN.

### ▲ TESTOSTERONE, FREE, BIOAVAILABLE AND TOTAL, MS

#### ALBUMIN

Reference Range: 3.6-5.1 g/dL



No Historical Data

#### ▲ SEX HORMONE BINDING GLOBULIN

Reference Range: 14-73 nmol/L



No Historical Data

#### TESTOSTERONE, FREE

Reference Range: 0.2-5.0 pg/mL



No Historical Data

#### TESTOSTERONE,BIOAVAILABLE

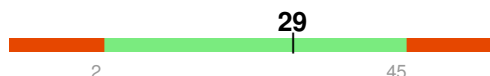
Reference Range: 0.5-8.5 ng/dL



No Historical Data

#### TESTOSTERONE, TOTAL, MS

Reference Range: 2-45 ng/dL



No Historical Data

For additional information, please refer to <http://education.questdiagnostics.com/faq/TotalTestosteroneLCMSMS>  
(This link is being provided for informational/educational purposes only.)

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

### ▲ PROSTAGLANDIN D2 (PG D2), URINE

#### ▲ PROSTAGLANDIN D2 (PG D2), URINE

263 H

Reference Range: Up to 175 ng/g Creatinine

No Historical Data

This test was performed using a kit that has not been cleared or approved by the FDA and is designated as research use only. The analytic performance characteristics of this test have been determined by Inter Science Institute. This test is not intended for diagnosis or patient management decisions without confirmation by other medically established means.

### ▲ PREGNENOLONE, LC/MS

## ▲ PREGNENOLONE, LC/MS

Reference Range: 22-237 ng/dL [See Note 1](#)



No Historical Data

## HISTAMINE RELEASE (CHRONIC URTICARIA)

### HISTAMINE RELEASE (CHRONIC URTICARIA)

<16

Reference Range: <16 % [See Note 1](#)

No Historical Data

## TRYPTASE

### TRYPTASE

Reference Range: <11.0 mcg/L



No Historical Data

The Tryptase test, fluorescent enzyme immunoassay (FEIA), measures both the Alpha and Beta forms of Tryptase. Measuring both forms of Tryptase increases sensitivity for the diagnosis of mastocytosis, and mast cell degranulation as a cause of anaphylaxis.

## HISTAMINE, PLASMA

### HISTAMINE, PLASMA

<1.5

Reference Range: < OR = 1.8 ng/mL

No Historical Data

This test was performed using a kit that has not been cleared or approved by the FDA. The analytical performance characteristics of this test have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. This test should not be used for diagnosis without confirmation by other medically established means.

## ESTROGENS, FRACTIONATED, LC/MS

### ESTRONE

27

pg/mL

No Historical Data

Adult Female Reference Ranges for Estrone:

Follicular Phase: 10-138 pg/mL  
Luteal Phase: 16-173 pg/mL  
Postmenopausal Phase: < or = 65 pg/mL

Pediatric Female Reference Ranges for Estrone:

Pre-pubertal  
(1-9 years): < or = 34 pg/mL  
10-11 years: < or = 72 pg/mL  
12-14 years: < or = 75 pg/mL  
15-17 years: < or = 188 pg/mL

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

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**ESTRADIOL, ULTRASENSITIVE LC/MS****7**

pg/mL

*No Historical Data*Female Reference Ranges for Estradiol,  
Ultrasensitive (pg/mL):

Follicular Phase: 39-375  
Luteal Phase: 48-440  
Postmenopausal Phase: < or = 10

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

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**ESTRIOL, SERUM****<0.10**

ng/mL

*No Historical Data*

Adult Reference Ranges for Estriol:

Adult Males: < or = 0.18 ng/mL  
Adult Females (nonpregnant): < or = 0.21 ng/mL

Pregnancy:  
First Trimester: < or = 2.50 ng/mL  
Second Trimester: < or = 9.60 ng/mL  
Third Trimester: < or = 14.60 ng/mL

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

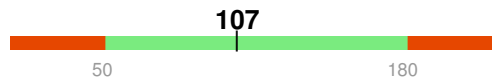
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**T3 REVERSE, LC/MS/MS****T3 REVERSE, LC/MS/MS**Reference Range: 8-25 ng/dL [See Note 1](#)*No Historical Data*

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**FACTOR VIII ACT, CLOTTING W/RFL CHROMOGENIC****FACTOR VIII ACTIVITY, CLOTTING**

Reference Range: 50-180 % normal

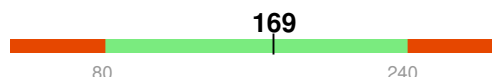
*No Historical Data*

For additional information, please refer to  
<http://education.questdiagnostics.com/faq/FAQ210>  
(This link is being provided for informational/educational purposes only.)

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**PROSTAGLANDINS F2 ALPHA****PROSTAGLANDINS: (PLASMA/SERUM)**

Reference Range: 80-240 pg/mL

*No Historical Data*

This test was performed using a kit that has not been cleared or approved by the FDA and is designated as research use only. The analytic performance characteristics of this test have been determined by Inter Science Institute. This test is not intended for diagnosis or patient management decisions without confirmation by other medically established means.

## CHROMOGRANIN A, LC/MS/MS

### CHROMOGRANIN A, LC/MS/MS

162

Reference Range: ADULTS: <311 ng/mL

No Historical Data

The sample type for this test was serum.

Interpretation of patient results may be affected by a variety of conditions such as hypertension, gastritis, prostate cancer, hyperparathyroidism, and most commonly renal disease and use of proton pump inhibitors (PPIs). (Vezzosi D, et al. Chromogranin A measurement in metastatic well-differentiated gastroenteropancreatic neuroendocrine carcinoma: screening for false positives and a prospective follow-up study. Int J Biol Markers. 2011 Apr-Jun;26(2):94-101.)

This test was performed using a Liquid Chromatography Mass Spectrometry method. Values obtained from different assay methods cannot be used interchangeably. Chromogranin A levels, regardless of value, should not be interpreted as absolute evidence of the presence or absence of disease.

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

## VITAMIN D,25-OH,TOTAL,IA

### VITAMIN D,25-OH,TOTAL,IA

Reference Range: 30-100 ng/mL



No Historical Data

Vitamin D Status 25-OH Vitamin D:

Deficiency: <20 ng/mL  
Insufficiency: 20 - 29 ng/mL  
Optimal: > or = 30 ng/mL

For 25-OH Vitamin D testing on patients on D2-supplementation and patients for whom quantitation of D2 and D3 fractions is required, the QuestAssured(TM) 25-OH VIT D, (D2,D3), LC/MS/MS is recommended: order code 92888 (patients >2yrs).

### COMMENT

No Historical Data

See Note 1

Note 1

For additional information, please refer to <http://education.QuestDiagnostics.com/faq/FAQ199> (This link is being provided for informational/ educational purposes only.)

## GLUCOSE

### GLUCOSE

Reference Range: 65-99 mg/dL



No Historical Data

Fasting reference interval

## IRON AND TOTAL IRON BINDING CAPACITY

## IRON, TOTAL

Reference Range: 45-160 mcg/dL



No Historical Data

## IRON BINDING CAPACITY

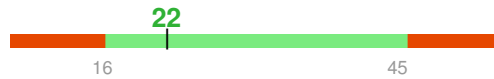
Reference Range: 250-450 mcg/dL (calc)



No Historical Data

## % SATURATION

Reference Range: 16-45 % (calc)



No Historical Data

## SED RATE BY MODIFIED WESTERGREN (REFL)

### SED RATE BY MODIFIED WESTERGREN

Reference Range: < OR = 30 mm/h



No Historical Data

## C-REACTIVE PROTEIN

### C-REACTIVE PROTEIN

Reference Range: <8.0 mg/L



No Historical Data

## DHEA SULFATE

### DHEA SULFATE

Reference Range: 5-167 mcg/dL



No Historical Data

DHEA-S values fall with advancing age.  
For reference, the reference intervals for 31-40 year old patients are:

Male: 93-415 mcg/dL  
Female: 19-237 mcg/dL

## FERRITIN

### FERRITIN

Reference Range: 16-232 ng/mL



No Historical Data

## INSULIN

## INSULIN

uIU/mL

4.8

No Historical Data

Reference Range < or = 18.4

Risk:

Optimal < or = 18.4

Moderate NA

High >18.4

Adult cardiovascular event risk category cut points (optimal, moderate, high) are based on Insulin Reference Interval studies performed at Quest Diagnostics in 2022.

## PROGESTERONE

### PROGESTERONE

<0.5

ng/mL

No Historical Data

Reference Ranges

Female

Follicular Phase < 1.0

Luteal Phase 2.6-21.5

Post menopausal < 0.5

Pregnancy

1st Trimester 4.1-34.0

2nd Trimester 24.0-76.0

3rd Trimester 52.0-302.0

## VITAMIN B12/FOLATE, SERUM PANEL

### VITAMIN B12

Reference Range: 200-1100 pg/mL

356

200

1100

No Historical Data

Please Note: Although the reference range for vitamin B12 is 200-1100 pg/mL, it has been reported that between 5 and 10% of patients with values between 200 and 400 pg/mL may experience neuropsychiatric and hematologic abnormalities due to occult B12 deficiency; less than 1% of patients with values above 400 pg/mL will have symptoms.

### FOLATE, SERUM

7.8

ng/mL

No Historical Data

Reference Range

Low: <3.4

Borderline: 3.4-5.4

Normal: >5.4

## T3, FREE

### T3, FREE

Reference Range: 2.3-4.2 pg/mL

2.9

2.3

4.2

No Historical Data

## TSH+FREE T4

### TSH

Reference Range: 0.40-4.50 mIU/L

1.36

0.40

4.50

No Historical Data

## T4, FREE

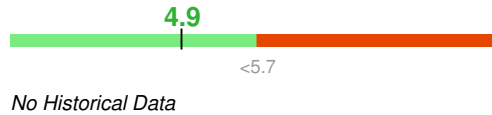
Reference Range: 0.8-1.8 ng/dL



## HEMOGLOBIN A1c

### HEMOGLOBIN A1c

Reference Range: <5.7 % of total Hgb



For the purpose of screening for the presence of diabetes:

- <5.7% Consistent with the absence of diabetes
- 5.7-6.4% Consistent with increased risk for diabetes (prediabetes)
- > or =6.5% Consistent with diabetes

This assay result is consistent with a decreased risk of diabetes.

Currently, no consensus exists regarding use of hemoglobin A1c for diagnosis of diabetes in children.

According to American Diabetes Association (ADA) guidelines, hemoglobin A1c <7.0% represents optimal control in non-pregnant diabetic patients. Different metrics may apply to specific patient populations. Standards of Medical Care in Diabetes(ADA).

Note 1 This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

### Performing Sites

EN Quest Diagnostics-West Hills, 8401 Fallbrook Ave, West Hills, CA 91304-3226 Laboratory Director: Tab Toochinda MD  
EZ Quest Diagnostics/Nichols SJC-San Juan Capistrano,, 33608 Ortega Hwy, San Juan Capistrano, CA 92675-2042 Laboratory Director: Irina Maramica MD,PhD,MBA  
INS INTERSCIENCE INSTITUTE, 944 W Hyde Park Blvd, Inglewood, CA 90302-3308 Laboratory Director: James Lee MD,PhD  
SLI Quest Diagnostics-Nichols Valencia, 27027 Tourney Rd, Valencia, CA 91355-5386 Laboratory Director: Thomas McDonald M.D.

### Key

Priority Out of Range Out of Range

## Report Insights

### TESTOSTERONE, FREE, BIOAVAILABLE AND TOTAL, MS

#### Low Testosterone in Men

Testosterone is a hormone made by your body. This publication provides information related to low testosterone in men.

View more: <https://www.questdiagnostics.com/home/patients/health-test-info/mens-health/general-wellness-testosterone-testing.html>

### ESTROGENS, FRACTIONATED, LC/MS

#### Estrogen Blood Tests

Estrogen tests are used to detect a deficiency or excess in women and a hormone excess in men to help diagnose a variety of conditions associated with this imbalance. Learn more about estrogen testing from the American Association for Clinical Chemistry's (AACC) Lab Tests Online website.

Go to the Lab Tests Online website: <https://labtestsonline.org/understanding/analytes/estrogen/tab/test/>

## T3 REVERSE, LC/MS/MS

### Thyroid Function Tests

The blood tests that are most widely used to evaluate thyroid function include those that measure TSH, T4, T3, free T4, and thyroid antibody levels. Read more about these tests in the brochure provided by the American Thyroid Association (ATA).

Download the brochure from the ATA website: [http://www.thyroid.org/wp-content/uploads/patients/brochures/FunctionTests\\_brochure.pdf](http://www.thyroid.org/wp-content/uploads/patients/brochures/FunctionTests_brochure.pdf)

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## VITAMIN D,25-OH,TOTAL,IA

### What is vitamin D?

Vitamin D is a fat-soluble vitamin that occurs in 2 forms: vitamin D<sub>3</sub> and vitamin D<sub>2</sub>. Vitamin D<sub>3</sub>, the more common form, is made in the skin after exposure to sunlight. Vitamin D<sub>2</sub>, on the other hand, comes mostly from food and over-the-counter supplements. It may also be used in the pharmacological treatment of vitamin D deficiency.

Vitamin D is rapidly metabolized in the liver to 25-hydroxyvitamin D (25[OH]D). This inactive form is then converted in the kidneys to the active 1,25-dihydroxyvitamin D form.

### What does vitamin D do in the body?

Vitamin D helps maintain healthy levels of calcium and phosphorus by aiding in their absorption from the gut. This helps the body form and maintain strong bones. Vitamin D also modulates neuromuscular, immune, and other cellular functions. Vitamin D deficiency has been associated with a wide range of medical conditions including heart disease, hypertension, diabetes, and cancer.

### Who should have 25-hydroxyvitamin D testing?

The Endocrine Society recommends screening individuals at risk for deficiency. These include those with <sup>1</sup>:

- Rickets
- Osteomalacia
- Osteoporosis
- Chronic kidney disease
- Hepatic failure
- Malabsorption syndromes
- Hyperparathyroidism
- Medications (anti-seizure medications, glucocorticoids, AIDS medications, antifungals, cholestyramine)

The Society also recommends screening <sup>1</sup>:

- African-American and Hispanic children and adults
- Pregnant and lactating women
- Older adults with history of falls
- Older adults with history of nontraumatic fractures
- Obese children and adults

The Endocrine Society also recommends monitoring patients with granuloma-forming disorders and some lymphomas by testing 25(OH)D and serum calcium.<sup>1</sup> Some physicians may wish to monitor people receiving vitamin D therapy to evaluate for compliance and expected change in concentration.

### How much vitamin D do people need?

To maximize bone health, the Endocrine Society suggests a dietary intake of at least 400 IU/day for **infants <1 year** and at least 600 IU/day for **children 1 year and older**.<sup>1</sup> Whether these levels are enough to provide all the nonskeletal benefits of vitamin D is not known. At least 1000 IU/day may be needed to raise the blood level consistently above 30 ng/mL (cut point for vitamin D sufficiency).<sup>1</sup>

To maximize bone health and muscle function in **adults 19 to 70 years of age**, the Endocrine Society suggests a dietary intake of at least 600 IU/day.<sup>1</sup> Whether these levels are enough to provide all the nonskeletal benefits of vitamin D is not known. At least 1500–2000 IU/day may be needed to achieve a blood level of 30 ng/mL.

To maximize bone health and muscle function in **adults over 70 years**, the Endocrine Society suggests a dietary intake of at least 800 IU/day.<sup>1</sup> Whether these levels are enough to provide all the nonskeletal benefits of vitamin D is not known. At least 1500–2000 IU/day may be needed to achieve a blood level of 30 ng/mL.

Obese children and adults and those on certain medications may need at least 2 to 3 times the suggested dietary intake for their age group.<sup>1</sup> Relevant medications include anticonvulsants, glucocorticoids, AIDS medications, and antifungals such as ketoconazole.

For people who are vitamin D insufficient or deficient, supplementation or a therapeutic prescription may be needed to correct the deficiency. Refer to the Endocrine Society guidelines<sup>1</sup> for treatment recommendations.

### What are the sources of vitamin D?

Vitamin D can be obtained from exposure to sunlight. However, sun exposure can be affected by season of the year, latitude, time of day, skin pigmentation, use of sunscreens, and age. These variables may necessitate alternative sources for some people.

One alternative source is the diet. Some foods are naturally high in vitamin D; these include oil-rich fish such as salmon, mackerel, and herring. For example, fresh farmed salmon may have approximately 100–250 IU in 3.5 ounces, whereas fresh, wild caught salmon may have

approximately 600-1000 IU in a 3.5 ounce serving. Shiitake mushrooms, especially sun-dried, are also high in vitamin D. Other foods are fortified with vitamin D; these include milk and other dairy products, orange juice, and some grain products.

Multivitamin and other supplements are another alternative source.

None of these sources may be adequate for people with liver or kidney disease as they may be unable to produce sufficient amounts of the active form of vitamin D. This is because vitamin D metabolism to the active form requires the liver and kidney. These people may need supplementation with the active form (1,25-dihydroxyvitamin D).

### What is the impact of seasons on vitamin D?

25(OH)D concentrations are typically at their lowest at the end of February and at their highest at the end of August. This seasonal effect is more notable in northern latitudes than in southern latitudes where the sun is out for more of the year. Thus, there may be more of a need to supplement, or to supplement with higher doses of vitamin D, in the winter months than in the summer months.

Quest Diagnostics data show that the percentage of patients who are deficient in vitamin D vary seasonally from 21% at the end of summer and 48% at the end of winter.

### How common is vitamin D deficiency?

Based on a sample of patients throughout the United States, Quest Diagnostics observed that 33% of patients were deficient in vitamin D, and 60% were either deficient or suboptimal.

### What does vitamin D testing measure?

Vitamin D tests generally measure the total concentration of 25(OH)D, which is the main form of vitamin D circulating in blood and the best indicator of vitamin D deficiency or excess. Vitamin D tests using liquid chromatography, tandem mass spectrometry (LC/MS/MS) may also provide the concentration of vitamin D2 and D3 which, when added together, equal the total vitamin D concentration. For detection of vitamin D deficiency, measurement of 1,25-dihydroxyvitamin D is not recommended, as levels may be misleadingly normal in patients with significant vitamin D deficiency.

### Why do physicians test for vitamin D?

A physician generally will order a test to determine the level of vitamin D in a patient's body. A physician would typically evaluate the test result in connection with several other factors affecting a patient's health such as medical history, gender, and age.

### What are vitamin D2 and vitamin D3?

Vitamin D2 is derived from fungal and plant sources and is commonly found in supplements, such as multivitamins, in the United States. Vitamin D2 may also be used in the pharmacological treatment of vitamin D deficiency. Vitamin D3 is derived from animal sources and is made in the skin following exposure to sunlight. The LC/MS/MS technique is able to directly quantify vitamin D2 and vitamin D3. By comparison, immunoassay-based vitamin D tests can only indirectly measure vitamin D2 and vitamin D3; therefore, only the total vitamin D is reported.

## Reference

1. Holick MF, Binkley NC, Bischoff-Ferrari HA, et al. Evaluation, treatment, and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab.* 2011;96:1911-1930. <https://www.endocrine.org/~media/endsociety/Files/Publications/Clinical%20Practice%20Guidelines/FINAL-Standalone-Vitamin-D-Guideline.pdf>: <https://www.endocrine.org/~media/endsociety/Files/Publications/Clinical%20Practice%20Guidelines/FINAL-Standalone-Vitamin-D-Guideline.pdf>

â This FAQ is provided for informational purposes only and is not intended as medical advice. A physician's test selection and interpretation, diagnosis, and patient management decisions should be based on his/her education, clinical expertise, and assessment of the patient.

Document FAQs.163 Version: 1

Version 1 effective 05/04/2015 to present

Version 0 effective 04/10/2015 to 05/03/2015: <http://education.questdiagnostics.com/faq/FAQ163-retired0>

## Vitamin D

Vitamin D is a nutrient that is needed for health and to maintain strong bones by helping the body absorb calcium from food and supplements. Learn more about vitamin D from this fact sheet provided by the NIH's Office of Dietary Supplements.

Download the fact sheet from the NIH website: <https://ods.od.nih.gov/pdf/factsheets/VitaminD-Consumer.pdf>

### Vitamin D, 25-Hydroxy

Vitamin D is a nutrient and it acts as a hormone in the body. It can come from some foods, such as salmon and fortified milk, and also supplements, but it is primarily made in the skin after sun exposure. Vitamin D regulates calcium and phosphate levels and is an important regulator of bone mass. It is also involved in actions of the immune system, muscles, and nerves. Vitamin D deficiency can cause osteoporosis (bone thinning and weakness in adults) or rickets, a childhood bone disease.

The liver is the first processor of vitamin D in the body and it metabolizes the fat-soluble vitamin to 25-hydroxyvitamin D, also known as calcifediol. 25-hydroxyvitamin D is used to assess vitamin D levels. More information on vitamin D and vitamin D deficiency can be found at Medline Plus by clicking here: <https://medlineplus.gov/ency/article/003569.htm>.

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## IRON AND TOTAL IRON BINDING CAPACITY

**Iron** is an essential micronutrient in the body, where it plays an important role in the production of healthy red blood cells. It also is an important constituent of proteins, such as hemoglobin (the protein in red blood cells that carry oxygen), myoglobin (the protein in the muscle that binds to oxygen), and enzymes (proteins that enable the metabolic processes to occur).

**In regards to performance**, since iron is a key micronutrient important for your body's ability to transport oxygen so that you can breathe, deficiencies in iron may result in the impairment of your ability to transport oxygen, which may result in fatigue, weakness and keeping you from reaching your full potential in your sport.

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## SED RATE BY MODIFIED WESTERGREN (REFL)

### Erythrocyte Sedimentation Rate

The erythrocyte sedimentation rate (ESR) test indirectly measures how much inflammation is in the body. Learn more about this test at the NIH's MedlinePlus Medical Encyclopedia website.

Go to the MedlinePlus website: <https://www.nlm.nih.gov/medlineplus/ency/article/003638.htm>

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## C-REACTIVE PROTEIN

### C-Reactive Protein

C-reactive protein is an acute phase protein that is used to detect inflammation due to acute conditions or to monitor chronic conditions. Learn more at the American Association for Clinical Chemistry's (AACC) Lab Tests Online website.

Go to the Lab Tests Online website: <https://labtestsonline.org/understanding/analytes/crp/tab/test/>

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## DHEA SULFATE

### Dehydroepiandrosterone (DHEA)

DHEA is an important precursor hormone, and is the most abundant circulating steroid present in the human body. Learn more about DHEA at You & Your Hormones, the public information website of the Society for Endocrinology.

Go to the You & Your Hormones website: <http://www.yourhormones.info/hormones/dehydroepiandrosterone.aspx>

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## FERRITIN

### Ferritin Blood Test

The ferritin test is ordered to assess a person's iron stores in the body. Learn more at the American Association for Clinical Chemistry's (AACC) Lab Tests Online website.

Go to the Lab Tests Online website: <https://labtestsonline.org/understanding/analytes/ferritin/tab/test/>

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## INSULIN

### Insulin Testing

Insulin is a hormone that is produced and stored in the beta cells of the pancreas. It is vital for the transportation and storage of glucose, the body's main source of energy. Learn more about insulin testing at the American Association for Clinical Chemistry's Lab Tests Online website.

Go to Lab Tests Online: <https://labtestsonline.org/understanding/analytes/insulin/tab/test/>

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## PROGESTERONE

### How do progesterone levels correlate with pregnancy?

Progesterone is a reproductive hormone that supports pregnancy by thickening the uterine lining to protect the fetus. Levels are low during a woman's cycle until they are temporarily elevated as the egg is released during ovulation and for 7-14 days after. If fertilization of the egg occurs, progesterone levels continually rise until birth. If pregnancy does not occur, progesterone levels return to their normal low level by the start of your next period.

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## PROGESTERONE

### Progesterone Test

Produced by the ovaries, progesterone is a hormone that plays an important role in the female reproductive cycle including ovulation, the menstrual cycle, and pregnancy. Learn more about testing for progesterone from this article provided by WebMD.

Read the article at the WebMD website: <http://www.webmd.com/women/progesterone-15286?print=true>

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## VITAMIN B12/FOLATE, SERUM PANEL

### Folate Fact Sheet

Folate is a B-vitamin used by our bodies to make DNA and other genetic material and is needed for the body's cells to divide. Learn more about folate from this fact sheet provided by the NIH's Office of Dietary Supplements (ODS).

Download the fact sheet from the ODS website : <https://ods.od.nih.gov/factsheets/Folate-Consumer/>

### Vitamin B12 Fact Sheet

In addition to keeping the body's nerve and blood cells healthy, the nutrient vitamin B12 helps make DNA, the genetic material in all cells.

Read more in this fact sheet provided by the NIH Office of Dietary Supplements : <http://ods.od.nih.gov/pdf/factsheets/VitaminB12-Consumer.pdf>

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## T3, FREE

### Thyroid Function Tests

The blood tests that are most widely used to evaluate thyroid function include those that measure TSH, T4, T3, free T4, and thyroid antibody levels. Read more about these tests in the brochure provided by the American Thyroid Association (ATA).

Download the brochure from the ATA website: [http://www.thyroid.org/wp-content/uploads/patients/brochures/FunctionTests\\_brochure.pdf](http://www.thyroid.org/wp-content/uploads/patients/brochures/FunctionTests_brochure.pdf)

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## T4, FREE

Thyroxine (T4) and triiodothyronine (T3) are the two major hormones produced by the thyroid gland. The majority of T4 is found in the body bound to proteins, with a smaller portion not bound to proteins, or "free." Free (unbound) T4 is secreted by the thyroid gland as the biologically active form, which plays a role in controlling the rate of metabolism and growth. Most of the T4 secreted is converted to T3 by the liver and other tissues. Once converted, T3 plays a role in metabolic rate, ATP production, protein breakdown, and glucose transport in muscle cells.

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## TSH+FREE T4

### Thyroid Function Tests

The blood tests that are most widely used to evaluate thyroid function include those that measure TSH, T4, T3, free T4, and thyroid antibody levels. Read more about these tests in the brochure provided by the American Thyroid Association (ATA).

Download the brochure from the ATA website: [http://www.thyroid.org/wp-content/uploads/patients/brochures/FunctionTests\\_brochure.pdf](http://www.thyroid.org/wp-content/uploads/patients/brochures/FunctionTests_brochure.pdf)

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## HEMOGLOBIN A1C

### HbA1c and eAG

The A1c is a blood test that tells you what your average blood glucose levels have been for the past 2 to 3 months. It may also be reported as estimated average blood glucose (eAG).

To interpret your result, first find your A1C number on the left. Then read across to learn your average blood glucose for the past 2 to 3 months			
6%	126 mg/dL	8.5%	197 mg/dL
6.5%	140 mg/dL	9%	212 mg/dL
7%	154 mg/dL	9.5%	226 mg/dL
7.5%	169 mg/dL	10%	240 mg/dL
8%	183 mg/dL	10.5%	255 mg/dL

### Hemoglobin A1c (HbA1c)

HbA1c is formed by glucose molecules attaching to the protein, hemoglobin (a process called glycation), in red blood cells. The blood test for HbA1c measures the percentage of hemoglobin that is glycated in the blood. Circulating HbA1c levels are an indicator of how much glucose the body has been exposed to over a 2-to-3-month time period. Measurement of HbA1c is useful for diagnosis as well as assessing the risk for developing diabetes. The American Diabetes Association (ADA) states that type 2 diabetes may be diagnosed if HbA1c is at 6.5% or higher with repeat testing. Learn more about HbA1c by clicking here: <http://www.diabetes.org/diabetes-basics/diagnosis/> to visit an informational page from the ADA website.

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### Quest Diagnostics Patient Service Centers

Use our online scheduling service to make an appointment at a Quest Diagnostics Patient Service Center.

Schedule an Appointment: <https://appointment.questdiagnostics.com/schedule-appointment/as-reason-for-visit>

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Note: Data displayed only for results that meet strict identification matching. Historical result view may vary based on corrected or updated patient demographics. The reference range displayed may vary due to potential changes in laboratory testing methods. Please refer to the published reference range on each lab report.

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These results have been sent to the person who ordered the tests. Your receipt of these results should not be viewed as medical advice and is not meant to replace discussion with your doctor or other healthcare professional.

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