

---

**Lab Dept:** Chemistry

**Test Name:** VITAMIN A AND E ASSAY

---

***General Information***

**Lab Order Codes:** VAE

**Synonyms:** Alpha tocopherol, serum; Retinol, serum

**CPT Codes:** 84446 – Tocopherol alpha (Vitamin E)  
84590 – Vitamin A

**Test Includes:** Specific quantitation of retinol and alpha-tocopherals. Vitamin A is reported in mcg/dL and Vitamin E is reported in mg/L.

---

***Logistics***

**Test Indications:** Vitamin A is useful for diagnosis of Vitamin A deficiency and toxicity. Evaluating persons with intestinal malabsorption of lipids. Vitamin E is useful for diagnosis of (or evaluation of) individuals with motor and sensory neuropathies, monitoring vitamin E status of premature infants requiring oxygenation, and evaluation of persons with intestinal malabsorption of lipids.

**Lab Testing Sections:** Chemistry - Sendouts

**Referred to:** Mayo Medical Laboratories (Test: VITAE)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 2 - 5 days, set up Monday - Friday

**Special Instructions:** See [Patient Preparation](#) and [Collection](#) below.

---

***Specimen***

**Specimen Type:** Blood

**Container:** SST - (Gold, marble or red top tube)

**Draw Volume:** 3 mL (Minimum: 1.5 mL) blood

<b>Processed Volume:</b>	1 mL (Minimum: 0.5 mL) serum
<b>Collection:</b>	Routine specimen collection
<b>Special Processing:</b>	Lab Staff: Centrifuge specimen, remove serum aliquot into an amber light resistant vial (Mayo Supply T192). Store and ship at refrigerated temperatures. If light resistant vial is not available, wrap specimen in foil. Forward promptly.
<b>Patient Preparation:</b>	Fasting patient for 12 - 14 hours (overnight fast) before specimen is collected is recommended. For infants, draw prior to next feeding.
<b>Sample Rejection:</b>	Warm specimens >24 hours, lipemic specimens, mislabeled or unlabeled specimens

***Interpretive***

**Reference Range:**

<b>Vitamin A (Retinol)</b>	
0 - 6 years:	11.3 – 64.7 mcg/dL
7 - 12 years:	12.8 – 81.2 mcg/dL
13 - 17 years:	14.4 – 97.7 mcg/dL
≥18 years:	32.5 – 78.0 mcg/dL
<b>Vitamin E (Alpha Tocopherol)</b>	
0 - 17 years:	3.8 - 18.4 mg/L
≥18 years:	5.5 – 17.0 mg/L
Significant VE Deficiency:	<3.0 mg/L
Significant VE Excess:	>40 mg/L

**Critical Values:** N/A

**Limitations:**

Testing of non-fasting specimens or the use of vitamin supplementation can result in elevated plasma vitamin concentrations. Reference values were established in patients who were fasting.

Acute ethanol ingestion may result in increasing serum vitamin A levels.

Failure to follow specimen processing instructions (protecting from light and freezing) may result in falsely-decreased values.

**Methodology:**

Liquid chromatography- Tandem Mass Spectrometry (LC-MC/MS)

**References:**

[Mayo Clinical Laboratories](#) August 2019

**Updates:**

6/5/2007: Addition of pediatric reference ranges.

9/4/2007: Lipemic specimens will be rejected. MML notification due to issues with fat solubility.

11/18/2008: Test update (order code).

9/28/2010: Order code change, Mayo now performs testing at Mayo New England lab. Reference range/units update and specimen volume decrease. Changed storage from frozen to refrigerated.

4/4/2011: Volumes for minimum are the same as recommended collection/processed.

3/30/2016: SST tubes are acceptable.

11/6/2017: Draw volume increase per MML.

8/13/2019: Method update