



Sample Report TEE13

SEX: Female  
AGE: 24

CLIENT #: 12345  
DOCTOR: Sample Doctor  
Doctor's Data, Inc.  
3755 Illinois Ave.  
St. Charles, IL 60174 U.S.A.

## Essential Elements; Serum

ESSENTIAL ELEMENTS								
		RESULT/UNIT	REFERENCE INTERVAL	-2SD	-1SD	MEAN	+1SD	+2SD
Calcium	(Ca)	9.5 mg/dL	8.9- 10.3					
Magnesium	(Mg)	2.1 mg/dL	1.7- 2.5					
Sodium	(Na)	138 mEq/L	135- 145					
Potassium	(K)	4.0 mEq/L	3.5- 5.0					
Phosphorus	(P)	4.2 mg/dL	2.5- 4.5					
Iron	(Fe)	38 µg/dL	50- 170					

### INFORMATION

#### Sodium and Potassium

Sodium (Na<sup>+</sup>) and potassium (K<sup>+</sup>) are electrolytes that affect most metabolic functions. They serve to maintain osmotic pressure and hydration of various body fluid compartments, body pH and regulation of heart and muscle functions. Electrolytes are also involved in oxidation-reduction reactions and participate in essential enzymatic reactions. Electrolytes can be affected by state of hydration. Hemolysis can result in falsely elevated K<sup>+</sup>.

#### Magnesium

Magnesium (Mg) is a major intracellular cation that is involved in over three hundred enzymatic reactions in the body. Little is known about the factors affecting serum Mg, but the parathyroid gland appears to be involved. Low serum Mg levels may be associated with poor diet/malabsorption, diabetes, hyperthyroidism, hypoparathyroidism, myocardial infarction, congestive heart failure, liver cirrhosis, alcoholism and diuresis. Increased serum Mg levels may be associated with renal failure, dehydration, severe diabetic acidosis, and Addison's disease.

#### Calcium

Although 99% of calcium exists in bones and teeth, serum calcium (Ca) is of greatest clinical concern. Ca regulates transmission of nerve impulses, muscle contraction, coagulation, and numerous enzymatic reactions. The uptake and release of Ca from bone is regulated by parathyroid hormone, and serum Ca levels are inversely proportional to phosphorus levels. Low serum Ca results in muscle tetany while high Ca levels result in lowered neuromuscular excitability, muscle weakness, and other more complex symptoms. Marked variations in serum Ca may result from parathyroid gland or bone disease, poor diet/intestinal absorption of calcium (vitamin D), kidney disease, and other abnormalities.

#### Inorganic Phosphorus

Measurements of serum inorganic phosphorus (phosphate or PO<sub>4</sub>) are used in the diagnosis and treatment of disorders including parathyroid gland and kidney diseases, and vitamin D status. Serum PO<sub>4</sub> is regulated by coordinated efforts of vitamin D and parathyroid hormone, and PO<sub>4</sub> levels are inversely proportional to Ca levels. Low PO<sub>4</sub> may be associated with fatigue, paresthesias and muscle weakness, while elevated PO<sub>4</sub> may be associated with hypoparathyroidism, hyperthyroidism, hypocalcemia and tetany.

#### Iron

Measurements of non-heme, serum iron (Fe) are used in the diagnosis and treatment of diseases such as Fe deficiency anemia, Fe toxicity and acute or chronic hemochromatosis. The most comprehensive assessment of Fe status includes transferrin saturation and ferritin.

### SPECIMEN DATA

Comments:

Date Collected: 02/19/2019

Time Collected: 11:00 AM

Methodology: Na, K ISE

Date Received: 02/21/2019

Fasting: No

Ca, Mg, P, Fe Spectrophotometry

Date Completed: 02/22/2019

v08.10