

Blood Testing Can Provide Important Clues During Evaluations for Cognitive Symptoms

GULFPORT, MS, UNITED STATES, August 28, 2026 /EINPresswire.com/ --

Cognitive symptoms such as difficulty concentrating, forgetfulness, mental fatigue, confusion, and changes in attention can have numerous potential causes. As part of a broader medical evaluation, blood testing can provide information about nutritional deficiencies, thyroid function, blood sugar, anemia, organ function, and other conditions that may contribute to changes in cognitive performance.

[Dr. Stanford Owen](#), owner of [ADD Clinics](#) in Gulfport, Mississippi, says laboratory testing can help clinicians examine possible physical contributors rather than assuming that cognitive symptoms originate from a single condition.

“Concentration and memory can be influenced by many different processes in the body,” Owen said. “Blood testing can help identify or rule out certain medical conditions that may produce symptoms resembling attention or cognitive disorders.”

Blood tests generally do not provide a standalone diagnosis for conditions such as attention-deficit/hyperactivity disorder or most forms of cognitive impairment. Instead, laboratory findings can become one component of an evaluation that may also include medical history, symptom patterns, medications, sleep, mental health, neurological findings, and other clinical information.

Thyroid Testing Can Provide Useful Information

Thyroid hormones affect metabolism throughout the body, including processes related to brain function.





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An underactive thyroid, known as hypothyroidism, can sometimes be associated with fatigue, slowed thinking, difficulty concentrating, and memory complaints. An overactive thyroid can also affect sleep, mood, attention, and energy levels.

Common laboratory testing may include thyroid-stimulating hormone, or TSH, along with additional thyroid hormone measurements when clinically appropriate.

“Symptoms involving attention are not always caused by an attention disorder,” Owen said. “Fatigue, sleep disruption, endocrine conditions, nutritional problems, medications, and other medical factors can sometimes produce overlapping symptoms.”

Vitamin B12 Deficiency Can Affect Neurological Function

Vitamin B12 plays a role in red blood cell production and normal neurological function.

A deficiency can potentially contribute to fatigue, weakness, numbness or tingling, balance problems, memory difficulties, and changes in thinking.

Blood testing can measure vitamin B12 levels. Additional testing may sometimes be used when initial results require further clarification.

Folate may also be evaluated because of its role in blood cell production and nervous system function.

Identifying a deficiency can help distinguish a potentially correctable medical contributor from other causes of cognitive symptoms.

Blood Counts Can Identify Anemia and Related Conditions

A complete blood count, commonly called a CBC, measures several components of blood, including red blood cells, hemoglobin, hematocrit, white blood cells, and platelets.

Anemia can reduce the blood's ability to carry oxygen and may contribute to fatigue, weakness, reduced exercise tolerance, dizziness, or difficulty concentrating.

A CBC can also provide information that may prompt further investigation of nutritional deficiencies, blood loss, inflammation, infection, or other medical conditions.

Blood Sugar Can Influence Cognitive Performance

Glucose provides an important source of energy for the brain.

Abnormally high or low blood sugar can affect concentration, alertness, energy, and cognitive function.

Laboratory testing may include fasting glucose or hemoglobin A1C, which provides information about average blood glucose levels over a period of several months.

Persistent abnormalities can indicate metabolic conditions requiring additional evaluation.

“Cognitive symptoms should be considered in context,” Owen said. “A person experiencing concentration problems along with substantial fatigue, changes in weight, sleep problems, or other physical symptoms may require investigation beyond the cognitive complaint itself.”

Electrolytes and Organ Function May Be Evaluated

Blood chemistry testing can provide information about electrolytes such as sodium, potassium, calcium, and bicarbonate.

Significant abnormalities in certain electrolytes can affect neurological function and, in some cases, contribute to confusion, weakness, or changes in mental status.

Kidney and liver function may also be examined.

Both organs play important roles in processing and removing substances from the body. Significant impairment can allow metabolic changes or substances to accumulate in ways that affect cognition.

A comprehensive metabolic panel can provide information about several of these areas within a single group of laboratory measurements.

Iron Studies May Help Explain Fatigue and Concentration Problems

Iron is necessary for hemoglobin production and oxygen transport.

Low iron stores can sometimes exist before severe anemia develops. Depending on symptoms and medical history, clinicians may evaluate ferritin and other iron-related measurements.

Fatigue associated with iron deficiency can sometimes be interpreted primarily as a problem with motivation or concentration, particularly when cognitive complaints occur alongside reduced physical energy.

Laboratory findings can help clarify whether a physiological factor may be contributing.

Testing Is Determined by Individual Symptoms

No single standard blood panel is appropriate for every cognitive complaint.

Age, medical history, medications, diet, sleep patterns, family history, duration of symptoms, neurological signs, and other factors can influence which tests are considered.

Some evaluations may involve relatively routine laboratory studies. Others may require additional testing based on specific symptoms or risk factors.

Blood testing can also produce findings unrelated to the cognitive complaint, making clinical interpretation important. A laboratory value slightly outside a reference range does not automatically explain a symptom.

Cognitive Evaluations Often Require Multiple Sources of Information
Laboratory testing represents one piece of a larger diagnostic process.

Attention difficulties can arise from sleep deprivation, anxiety, depression, medication effects, substance use, hormonal conditions, nutritional deficiencies, neurological disorders, chronic medical conditions, or environmental factors.

Memory complaints can have similarly diverse causes.

Determining the source often involves considering when symptoms began, how they have changed, where they occur, what other symptoms accompany them, and whether medical or lifestyle changes occurred around the same period.

"Blood tests provide data, but that data has to be interpreted alongside the complete clinical picture," Owen said. "The objective is not simply finding an abnormal number. The objective is determining whether a medical factor may help explain the symptoms being evaluated."

For individuals experiencing cognitive changes, laboratory testing can therefore serve an important investigative role. Results may identify a potentially treatable contributor, help exclude certain medical explanations, or indicate that additional evaluation is appropriate.

Cognitive symptoms can originate from many different sources. Examining physical health alongside attention, memory, behavior, sleep, and neurological factors can provide a more complete understanding of what may be contributing to those changes.

About ADD Clinics

ADD Clinics is based in Gulfport, Mississippi, and provides clinical evaluation and treatment related to attention, concentration, and associated cognitive and behavioral concerns.

Morgan Thomas
Rhino Digital, LLC

+1 504-875-5036

[email us here](#)

Visit us on social media:

[Facebook](#)

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