

The clinical value of the Doctor's Data Glutathione Test



Hi, I'm Dr. Sodano, the director of clinical support and education at Evexia Diagnostics.



As you most likely know, glutathione is the most abundant and important intracellular antioxidant that is synthesized in most cells of the body.

It's important to know that GSH levels are thousands of times higher in cells than in plasma. So, measuring glutathione in the cells can provide a more meaningful assessment and one way to do this is by measuring the level of glutathione in the red blood cells. Assess the level of total erythrocyte or red blood cell glutathione, which is a significant indicator of GSH status and metabolism.

Assessment and support of GSH can contribute to healthy aging and effective detoxification of toxic metals and chemicals. Essentially, the level of GSH in erythrocytes is a sensitive indicator of intracellular GSH status, the overall health of cells, and of the ability to endure toxic challenges.

Low levels of GSH have been reported in cardiovascular disease, cancer, AIDS, autism, alcoholism, debilitating neurodegenerative diseases such as Alzheimer's and Parkinson's, and chronic retention of potentially toxic elements such as mercury, lead, arsenic, cadmium manganese, and iron), chemicals, and some drugs. It's also important to know that intracellular GSH biosynthesis and intracellular levels can be upregulated as a protective mechanism.

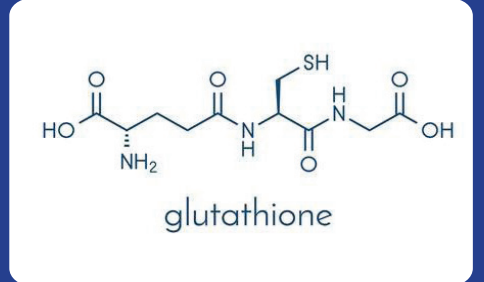
Some factors that result in increased biosynthesis and "high normal" erythrocyte GSH levels include moderate alcohol consumption, smoking, regular physical exercise, and acute exposure to toxic metals. Under these conditions it is essential to provide the body with the key nutrients involved in GSH synthesis in order to sustain functionally appropriate levels of GSH. Magnesium and potassium are required for both energy dependent enzymatic steps in GSH synthesis; cysteine is the rate limiting amino acid.

	LAB #: Sample Report PATIENT: Sample Patient ID: S.S. Male AGE: 14	CLIENT #: 12345 DOCTOR: Sample Doctor, MD Doctor's Data, Inc. 275 Brook Ave. St Charles, IL 60174 U.S.A.
Glutathione, Erythrocytes		
	Within Outside Reference Range	
Glutathione*	954	1150 µmol/L
<p>Glutathione (GSH) is a tripeptide (γ-glutamylcysteinylglycine) synthesized in most cells. The level of GSH in erythrocytes is a sensitive indicator of intracellular GSH status, the overall health of cells, and of the ability to endure toxic challenges. GSH is the most abundant non-protein thiol in mammalian cells. It is involved in many biological processes including detoxification of xenobiotics, removal of oxygen-reactive species, regulation of the redox state of cells and the oxidative state of membrane proteins, sulfhydryl groups, and regulation of enzyme function. GSH levels are thousands of times higher in cells than in plasma. Plasma GSH represents primarily that synthesized and exported from the liver. Reduced GSH (rGSH) is the active form of the tripeptide and the ratio of rGSH:oxidized GSH (oxGSH) is normally about 1:1. Once a blood sample is obtained, erythrocyte GSH is very susceptible to oxidation and the rGSH:oxGSH ratio drops rapidly. Specimen handling to prevent the ex vivo oxidation of rGSH is important and direct measurement of GSH in vivo is not feasible outside of a research setting. However, research clearly indicates that undesirable ratios of rGSH:oxGSH are usually associated with abnormally low levels of total cellular GSH. Therefore, it is clinically meaningful to assess the level of total erythrocyte GSH as an indicator of GSH status and metabolism.</p> <p>Low levels of GSH have been reported in cardiovascular disease, cancer, AIDS, autism, alcoholism, debilitating neurodegenerative diseases such as Alzheimer's and Parkinson's, and chronic retention of potential toxic elements (mercury, lead, arsenic, cadmium manganese, iron), chemicals, and some drugs. Intracellular GSH biosynthesis and intracellular levels can be upregulated as a protective mechanism. Some factors that result in increased biosynthesis and "high normal" erythrocyte GSH levels include, but are not limited to, moderate alcohol consumption, smoking, regular physical exercise, and acute exposure to toxic metals. Under such conditions it is essential to provide the body with the key nutrients involved in GSH synthesis in order to sustain functionally appropriate levels of GSH. Magnesium and potassium are required for both energy dependent enzymatic steps in GSH synthesis; cysteine is the rate limiting amino acid. Nutritional products that have been documented to increase erythrocyte GSH:GSSG biosynthesis include high quality whey protein preparations, ascorbic acid, coenzyme Q10, liposomal GSH, reburized GSH, and to a lesser extent, N-acetylcysteine.</p> <p>Assessing and supporting appropriately high levels of erythrocyte GSH is important towards protecting cells, overall health and longevity, and contributes significantly to safe and effective metal detoxification.</p>		
<p>Comments: Date Collected: 07/17/2023 Collection Period: Date Received: 07/17/2023 Method: LC/MS/MS Date Completed: 07/14/2023 ☑️: Low than detect limit (Lxk)</p> <p>* For research use only. Not for use in diagnostic procedures. © 2023 Doctor's Data, Inc. • 2426589818 • 3105 Stock Avenue, St. Charles, IL 60174 • 800-555-9774 • www.doctorsdata.com 0002115</p>		

Glutathione (GSH) is the most abundant and important intracellular antioxidant. GSH in erythrocytes is an indicator of intracellular GSH status, the overall health of cells and of the ability to endure toxic challenges. Low levels of GSH have been reported in cardiovascular disease, cancer, AIDS, autism, alcoholism, and debilitating neurodegenerative diseases such as Alzheimer's and Parkinson's. It has also been associated with chronic retention of many potential toxic elements, chemicals and some drugs. Assessment and support of erythrocyte GSH can contribute to healthy aging and effective detoxification of toxic metals and chemicals.

USEFUL FOR:

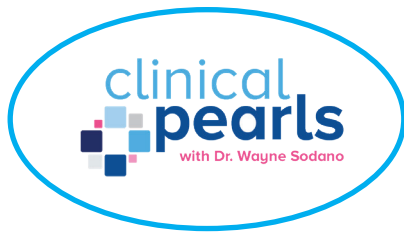
- Oxidative Stress
- AIDS
- Alzheimer's Disease
- Autism
- Cancer
- Cardiovascular Disease
- General Health and Longevity
- Parkinson's Disease
- Retention of Toxic Elements Chemicals



Learn more about the DDI Glutathione Test by clicking here.
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The clinical value of the Doctor's Data Glutathione Test



Here are some Evexia Nutraceuticals™ recommendations related to glutathione related conditions for your patients:

S-ACETYL GLUTATHIONE COMPLETE – S-Acetyl Glutathione is a unique form of glutathione, one of the most powerful antioxidants naturally produced in the body. It has an acetyl group (COCH3) attached to the sulfur atom of cysteine in the glutathione molecule. S-Acetyl Glutathione is well-suited for oral ingestion, because this acetyl group protects glutathione from breaking down in the gastrointestinal tract. Once absorbed and inside the cells it is removed, thus leaving the glutathione molecule intact. S-Acetyl Glutathione Complete helps to support immune function and to optimize glutathione-dependent hepatic detoxification pathways.** It is the perfect choice when higher doses of glutathione are recommended. This product also includes N-acetyl cysteine (NAC) and vitamin B6, both of which are important for the production of glutathione.

MAX ANTIOX COMPLETE – Max Antiox Complete is a unique antioxidant formula derived from some of nature's most powerful herbs and spices, along with other classic and novel antioxidant compounds. These ingredients were chosen due to their ability to maintain the function and integrity of both water-based and lipid-based body structures and compounds, including cell membranes, LDL cholesterol, proteins, and enzymes.

MITO-MAXPQQ – Mito-MaxPQQ is designed to help support optimal mitochondrial biogenesis, which is critical for the promotion of healthy aging, optimal energy production, and protection from reactive oxygen species (oxidative stress). Mito-MaxPQQ features pyrroloquinoline quinone (PQQ), a water-soluble, vitamin-like compound, and Rhodiola rosea, a popular adaptogen. PQQ is an enzyme cofactor possessing antioxidative, neuroprotective, and cardioprotective properties that encourage mitochondrial biogenesis. Rhodiola rosea helps support the adrenal glands. Research shows that Rhodiola rosea is a powerful herb for enhancing mitochondrial energy production and helps defend against free radicals in the nervous system as well as the mitochondria.



Learn more about the DDI Glutathione Test by [clicking here](#).
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