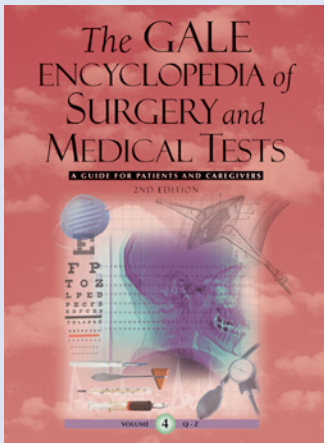


The Gale Encyclopedia of Surgery and Medical Tests

In-depth information for students, patients and practitioners



The Gale Encyclopedia of Surgery and Medical Tests

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Topics of a more general nature related to surgical hospitalization and medical testing round out the set, including entries on adult day care, ambulatory surgery centers, Do Not Resuscitate (DNR) order, finding a surgeon, hospice, living will, Medicaid, Medicare, patient rights, second opinion and others.

Albumin Test, Blood

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National Accreditation Agency for Clinical Laboratory Sciences. Information about laboratory tests. <http://www.naaccs.org/> (February 25, 2008).

ORGANIZATIONS
American Association for Clinical Chemistry, 1830 K Street, NW, Suite 625, Washington, DC, 20006, (800) 892-1400, <http://www.aacc.org/>.
American Society for Clinical Laboratory Science, 6701 Democracy Blvd., Suite 300, Bethesda, MD, 20817, (301) 657-2700, <http://www.aschl.org/>.
American Society for Clinical Pathology, 1225 New York Ave., NW, Suite 250, Washington, DC, 20005, (202) 462-4400, <http://www.ascp.org/>.
College of American Pathologists, 325 Waukegan Rd., Northfield, IL, 60093-2750, (800) 323-4040, <http://www.cap.org/apps/capportal>.

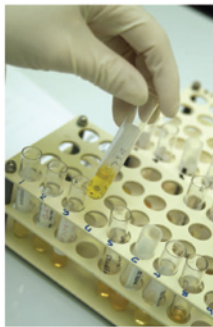
L. Fleming Fallon, Jr., M.D., Dr.P.H.

Albumin test see **Liver function tests**

Albumin Test, Blood

Definition

Albumin is a type of protein found in the plasma (liquid) portion of the blood. Of all the types of proteins in plasma, albumin is found in the highest concentrations, constituting about two-thirds of total plasma protein.



Vials of blood serum. (AP/Wide World/Photo Research, Inc.)

Albumin serves a number of important purposes. It transports a variety of other important chemicals in the blood, allowing them to be delivered to various organs and tissues. Chemicals that bind to albumin include thyroidine, bilirubin, penicillin, cortisol, estrogen, free fatty acids, warfarin, calcium, magnesium, and heme. Appropriate levels of albumin are also necessary in order to maintain sufficient quantities of fluid within the blood vessels. When the correct concentration of albumin is present in the blood's serum, fluid remains in the blood vessels in order to reach a chemical equilibrium of protein concentrations in and outside of the blood vessels. When there is an insufficient amount of albumin in the serum, fluid will leak out of the blood vessels in response to the considerably higher concentration of proteins in the surrounding tissues. This can result in visible swelling of the lower legs (referred to as edema), or in ascites (an abnormal collection of fluid in the abdomen).

Purpose

Albumin levels are tested in order to monitor liver and kidney functioning, and in order to ascertain an individual's nutritional status. Albumin levels may be checked if there is new edema or ascites. Albumin is manufactured in the liver, therefore, low albumin levels may indicate liver damage. Under normal circumstances, no albumin leaves the body in urine; however, when the kidneys are damaged, they may become leaky, allowing albumin to be excreted in the urine. This happens, for example, in nephrotic syndrome, and in pregnant women with pre-eclampsia and eclampsia. Individuals who have poor diets, with an extremely low dietary intake of protein, may also have low serum albumin.

An increased concentration of albumin may suggest that an individual has become dehydrated. High albumin levels may also occur when an individual is using insulin, growth hormones, androgens, or anabolic steroids.

Precautions

Individuals who have been on intravenous fluids may not have an accurate serum albumin reading. Additionally, it's important to remember that women have lower-than-normal serum albumin levels during pregnancy. Individuals using certain medications, such as insulin, growth hormones, androgens, or anabolic steroids, may also have an abnormal serum albumin level.

Description

This test is usually performed as part of a panel of blood tests, in which a single sample of blood is tested for a variety of chemical elements. Serum albumin levels are often tested along with total protein levels. A blood test for serum albumin requires vein puncture with a needle, and is usually performed by a nurse or phlebotomist (an individual who has been trained to draw blood).

Preparation

There are no restrictions on diet or physical activity, either before or after the blood test.

Aftercare

As with any blood tests, discomfort, bruising, and/or a very small amount of bleeding is common at the puncture site. Immediately after the needle is withdrawn, it is helpful to put pressure on the puncture site until the bleeding has stopped. This decreases

KEY TERMS

Ascites—An abnormal collection of fluid within the abdomen, often suggests liver disease such as cirrhosis.

Cirrhosis—Liver disease that results in damage and scarring to the liver.

Dehydration—Low overall levels of body fluid. May occur due to increased loss of fluids through sweating, vomiting, or diarrhea.

Eclampsia—A serious, life-threatening complication of pregnancy, in which high blood pressure results in a variety of problems, including seizures.

Nephrotic syndrome—A kidney disorder which causes a cluster of symptoms, including low serum protein, loss of protein in the urine, and body swelling.

Plasma—The fluid component of blood which contains such substances as proteins, vitamins, minerals, enzymes, and sugars.

Pre-eclampsia—High blood pressure in pregnancy, which can result in protein in the urine; untreated, pre-eclampsia may lead to the life-threatening condition known as eclampsia, which is characterized by seizures.

the chance of significant bruising. Warm packs may relieve minor discomfort. Some individuals may feel briefly woozy after a blood test, and they should be encouraged to lie down and rest until they feel better.

Risks

Basic blood tests, such as serum albumin levels, do not carry any significant risks, other than slight bruising and the chance of brief dizziness.

Normal results

In general, the normal range of serum albumin is 3.4 to 5.4 g/dL (grams per deciliter). Different labs may have slightly different values listed for the normal range of serum albumin. If total serum proteins are also being tested, the fraction that is made up of albumin should be about 60%.

Abnormal results

Low albumin may indicate:
• liver disease, such as cirrhosis, hepatitis, or hepatocellular necrosis (death of liver cells);

Albumin Test, Blood

▲ Over 500 color photographs, illustrations, and tables enrich entries.

COVERS EVERY MAJOR BODY SYSTEM

Entries in *The Gale Encyclopedia of Surgery and Medical Tests* go deep and wide. Medical tests and surgical procedures for every major body system are covered and for each the following details are given:

- Definition
- Description
- Purpose
- Demographics
- Diagnosis/preparation
- Aftercare
- Precautions
- Risks
- Side effects
- Interactions
- Morbidity and mortality rates
- Alternatives
- Normal results
- Questions to ask the doctor
- "Who performs the procedure and where is it performed?"
- Resources
- Key Terms

ADDITIONAL HELP

The following features assure users of finding needed information: full-color illustrations and photographs; bibliographies of further reading sources; a glossary of medical terminology; appendices listing top centers for specific surgical procedures and national organizations and support groups for patients; and a comprehensive index.

COMPILED BY EXPERTS

Essays in the *The Gale Encyclopedia of Surgery and Medical Tests* were compiled by experienced medical writers, including medical doctors, registered nurses, and pharmacists. A professional advisory board reviewed completed essays to ensure that they are appropriate, up-to-date and accurate.

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and sensitive to the special needs of older adults. For example, centers and services for persons with Alzheimer's disease or other dementias must take special precautions to ensure that people do not wander away from the facility.

Results
The aging population in the United States, the increasing incidence of Alzheimer's disease, and rising popularity of adult day care have created new and additional opportunities for health professionals and other care-giving and service personnel.

Resources

BOOKS
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"Adult Day Care Fact Sheet." *Eldercare: U.S. Department of Health and Human Services July 6, 2005*. http://www.eldercare.gov/eldercare/PublicResources/Fact_Sheets/adult_day.asp (December 24, 2007).

ORGANIZATIONS
Alzheimer's Association, 225 N. Michigan Ave., Fl. 17, Chicago, IL 60601-7633, (312) 335-8700, (800) 272-3800, (800) 696-1346, info.alz.org, www.alz.org.
California Association for Adult Day Services, 921 11th Street Suite 1101, Sacramento, CA 95814, (916) 552-7400, (916) 552-7404, caads.org, <http://www.caads.org>.
National Adult Day Services Association, 85 South Washington, Suite 316, Seattle, WA 98104, (877) 745-1440, (206) 464-3318, info.nadso.org, www.nadso.org.
U.S. Administration on Aging, One Massachusetts Ave., Washington, DC 20001, (202) 419-0724, [AOAInfo@asa.hhs.gov](http://www.AOAInfo@asa.hhs.gov), <http://www.aoa.gov>.

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ALICD see Implantable cardioverter-defibrillator

Alanine aminotransferase test
Definition
The alanine aminotransferase test, also known as ALT, is one of a group of tests known as liver function tests (or LFTs) and is used to monitor damage to the liver.

Purpose
ALT levels are used to detect liver abnormalities. Since the alanine aminotransferase enzyme is also found in muscle, tests indicating elevated ALT levels may indicate muscle damage; however, other tests, such as the levels of the MB fraction of creatine kinase should indicate whether the abnormal test levels are because of muscle or liver damage.

Demographics
The number of ALT tests administered each year can only be estimated. Since statins are the most prescribed drugs in the United States and standards of care call for quarterly liver function tests, the number of ALTs can easily exceed 500 million per year.

38 GALE ENCYCLOPEDIA OF SURGERY AND MEDICAL TESTS, 2ND EDITION

▲ A Resources section directs readers to books, articles, organizations, and other additional sources of information on a topic.

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