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## What are Autologous Serum Eye Drops (ASEDs)?

Autologous means self, the individual is both the donor and the recipient. It is the separation of the red blood cells and clotting factors, leaving the serum and growth factors. Autologous serum eye drops are made of the patient's own blood. They are used to help treat moderate to severe cases of dry eye disease, a condition that is not relieved by conventional artificial tear eye drops.

Unlike artificial tears, which contain lubricants as their main ingredients, Autologous Serum Eye drops consist of vital natural ingredients. These natural ingredients are found in blood serum, such as Antibodies, Albumin, Vitamin A, and special growth factors known as Epidermal Growth Factors, which are very important for healthy eyes. With Autologous Serum Eye Tears, there is no issue of burning or stinging upon installation because blood and tears have almost the same acidity and salinity.

## References

Celebi AR, Ulusoy C, Mirza GE. The efficacy of autologous serum eye drops for severe dry eye syndrome: a randomized double-blind crossover study. *Graefes Arch Clin Exp Ophthalmology*. 2014 Apr;252(4):619-26. doi: 10.1007/s00417-014-2599-1. Epub 2014 Feb 25. PMID: 24566903.

Dana Reed-Kane Pharm D, FIACP, Rachel Carlson, Thomas C PhD. Applications and sterility of Autologous Serum Eye Drops". *International Journal of Pharmaceutical Compounding*. Volume 13 No. 6 November / December 2009

Geerling G, MacLennan S, Hartwig D Autologous serum eye drops for ocular surface disorders.

*British Journal of Ophthalmology* 2004; 88:1467-1474.

Shimmura, S et al. "Albumin as a tear supplement in the treatment of severe dry eye." *The British journal of ophthalmology* vol. 87,10 (2003): 1279-83. doi:10.1136/bjo.87.10.1279

# Autologous Serum Eye Drops

## Severe Dry Eyes

Severe Dry Eyes is a condition in which tears are not able to provide adequate lubrication for the eyes.

## Why Choose Autologous Serum Eye Drops?

Current therapies for dry eyes include preservative-free Artificial Tears Solutions, Punctal Plugs, and Cyclosporine emulsion as options in some patients. While these therapies offer relief of symptoms, they do not contain components such as Epithelial Growth Factor (EGF), Transforming Growth Factor -  $\beta$  (TGF -  $\beta$ ), and Vitamin A, found in natural tears. Human Serum contains these components and when diluted with normal saline, it mimics normal tears and provides relief to patients suffering from severe dry eyes syndrome.

## How Are They Made?

Blood is drawn from the patient using serum- separator tubes with red/gray "tiger top". The drawn blood is centrifuged and separated into its components at a designated laboratory. The separated serum is stored correctly and shipped/delivered to SandsRX Pharmacy within a specified time frame. Using aseptic technique, the compounding technician aseptically mixes the blood serum with sterile saline and dispenses the finished sterile compound into small dropper bottles. The finished eye drops can be made at serum concentration of 20%, 25%, 30%, 40% or more depending on the severity as determined by the prescribing physician.

## Storage

The prepared eyed drops must be stored in the freezer to maintain optimal freshness and slow down the growth of harmful microorganisms. Patients will thaw one vial at a time in the refrigerator for daily use. Since the eye drops are preservative-free, a thawed vial should be used within 7 days of opening. The frozen serum eye drops are good for 90 days, if stored correctly.

## FAQ's

### How can I get Autologous eye serum?

The eye drop can only be compounded following a physician's order. Your eye doctor will review your condition and determine if you are a candidate for autologous eye serum and then write a lab order to draw and centrifuge the blood & a compounding order to the Pharmacy.

### How should I prepare for a blood draw?

Ensure patients are well hydrated and avoid fatty diets the night before blood draws.

### When should I bring centrifuged blood to the pharmacy?

Serum should be delivered to the Pharmacy as soon as possible. Compound should be made within 24 hours of blood drawn.

### Why would the Pharmacy reject blood/serum samples?

When the container is compromised or does not contain patient information. Each bottle must have a patient identifier like name/initial, date of birth, date, and time of blood draw. The Pharmacy will not accept samples that are not correctly identified. Make sure the lab correctly identifies your sample, before you accept the sample, for onward delivery to the pharmacy.

### How much blood does the lab need to make my serum drops?

That depends on the available serum per vial of blood, the desired concentration, and the days' supply needed. From experience, you will need 3 vials of tiger tube blood vials to make a 20% concentration serum for a 45-day supply.

### How much will it cost?

A 45-day supply cost approximately \$140 and a 90-day supply cost approximately \$280.

### How soon can I get my finished compound

The compound will be ready within 24 to 48 hours of receipt of samples by the Pharmacy. Finished compounds can be shipped or patients can choose to pick up.

### Patient support & education?

Our highly trained and Board-Certified Sterile Pharmacists are available to provide patient counseling and answer questions that are not covered in this brochure.

## How Effective Are Autologous Serum Eye Drops

ASEDs have shown to be effective in treating moderate to severe dry eye over the 20 years since its introduction and has had few known adverse events. Autologous Serum Drops have been used to treat a wide range of ocular surface diseases such as: Severe Dry Eye Syndrome caused by Rheumatoid Arthritis, Sjogren's Syndrome, Keratitis, or Keratoconjunctivitis Sicca, to moderate temporary dry eye symptoms following LASIK surgery. Since these eye drops are derived from the patient's own blood, as opposed to blood from donors, there is no risk of eye drop rejection (known as graft versus host disease).

While a few theories have been floated as to why ASEds help dry eye patients who have failed to improve significantly with other therapies, the mechanism of how the drops work is still unknown. Some theories suggest that because the serum contains a lot of Albumin (a natural protein also found in eggs), it creates a higher quality, protective tear film for the corneal epithelial cells (surface cells).

In addition to improving the quality of a patient's tear film, using the serum for eyes helps improve the health of the delicate nerves on the eye's surface. ASEds can also be administered to improve the healing potential of the ocular surface before and after certain surgeries such as corneal transplants and vitrectomies. It should be noted that ASEds are not tear substitutes and are often used in conjunction with other treatment modalities such as artificial tears.

Since these drops are custom made from patient's own tears and not manufactured, clinical trials have been limited. As such, this treatment does not currently have FDA approval. Nonetheless, specialty Ophthalmology groups such as the American Society of Cataract and Refractive Surgery, the Tear Film and Ocular Surface Society, and the International Task Force on Dry Eye all recommend ASEds to treat moderate to severe dry eye based on their members' success in treating dry eye symptoms with ASEds.

## Tears Serve Four Major Purposes:

1. Smoothen the Cornea
2. Wet and Protect the epithelium
3. Inhibit growth of microorganisms
4. Provide nutrition to the cornea

When the body does not produce enough tears, or the tears do not have the proper component, the result is dry eye. An individual experiencing dry eyes may have a sensation of a foreign body in the eye, itching, photophobia, and other unpleasant symptoms.

## Reasons For Tear Film Dysfunction:

1. Hormonal changes
2. Autoimmune disease
3. Inflamed eyelid glands
4. Allergic eye disease
5. Medications like antihistamines and beta blockers

The initial concerns for dry eyes are the discomfort and a slight loss of visual acuity, over time, continued dryness of the ocular surface can lead to cornea damage, infection, and possible loss of vision.

