

 **Vital Tears™**

Serum Tears Made Simple

Information for Providers





HISTORICAL OVERVIEW OF AUTOLOGOUS SERUM TEARS

First described in 1975, autologous serum tears are customized eye drops derived from a patient's own blood serum. Their composition mimics natural tears, with components like growth factors and cytokines that are recognized in the literature for promoting healing of the ocular surface epithelium and restoring tear film homeostasis.^{1,2}

In 2017, as part of its quest to achieve global consensus concerning multiple aspects of DED, the Tear Film & Ocular Surface Society (TFOS) Dry Eye Workshop (DEWS II) initiative adopted the use of autologous serum tears as a treatment for DED.³

Algorithms such as those from TFOS DEWS II, the American Society of Cataract and Refractive Surgeons Cornea Clinical Committee, and the Cornea, External Disease and Refractive Society (CEDARS) group have provided much needed direction to streamline the categorization and staging of DED and recommending treatments. The algorithms include serum tears as an important therapeutic option for patients with stage 3 or moderate to severe DED.^{4,5,6}

Beyond DED, physicians have included serum tears in treatment regimens for a broad spectrum of hard-to-treat ocular surface conditions.⁷

NATURAL TEARS VS. SERUM TEARS

Blood serum contains several of the same beneficial components found in natural tears produced by the lacrimal glands, so the composition of serum tears is comparable to natural tears.

	TEARS	SERUM
ph	7.4	7.4
Osmolality (SD)	298	296
EGF (ng/ml)	0.2-0.3	0.5
TGF- β (ng/ml)	2-10	6-33
Vitamin A (mg/ml)	0.02	46
Lysozyme (mg/ml) (SD)	1.4 (0.2)	6
SigA (μ g/ml) (SD)	1190 (904)	2
Fibronectin (μ g/ml) (SD)	21	205



VITAL TEARS STANDARDIZES THE PROCESS OF MAKING SERUM TEARS

Historically, serum tears were prepared by individual physicians for individual patients without a consistent approach for quality control. Today, Vital Tears is preparing serum tears in a standardized setting using rigorous quality-controlled processing procedures to ensure consistency, quality, and safety.

VITAL TEARS ARE



PRESERVATIVE FREE

Vital Tears are **preservative free**.



CUSTOM MADE

Vital Tears are **custom made** for each patient to the exact specifications advised by their physician.



SAFE

Vital Tears are **processed in a medical laboratory** by dedicated technicians using validated safety procedures.



MICROFILTERED

Vital Tears are **microfiltered** to remove pathogens.

VITAL TEARS MAKES SERUM TEARS SIMPLE

Vital Tears can provide your patients with hassle-free, rapid access to serum tears in as little as 48 hours after a blood draw, regardless of where they live in the United States.

THE VITAL TEARS PROCESS



1. Register as a provider and place an order using our **online portal**.



2. The Vital Tears **Patient Services team** contacts the patient to schedule the blood draw, collect payment and explain how to use and store their tears.



3. Blood is drawn at one of our **400+ collection facilities** nationwide or by a mobile phlebotomist and shipped overnight to our processing lab.



4. Our highly **trained technicians produce the serum tears** in an aseptic environment under a laminar flow hood. The blood serum is diluted with balanced salt solution according to the physician's order.

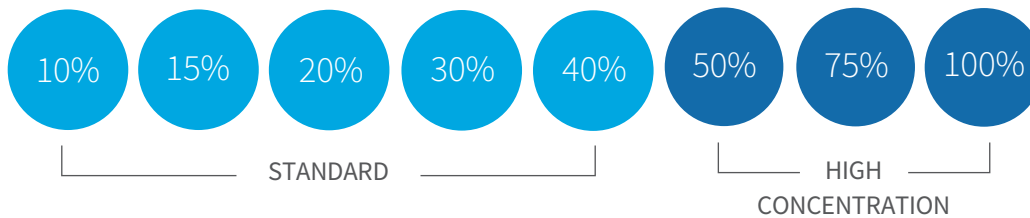


5. The tears are **shipped cold to the patient within 48 hours** of their blood being drawn.

Patient Services is available to answer patients' questions as they get started with their tears and will reach out to help them get refills of Vital Tears in a timely manner.

PRODUCT SPECIFICATIONS

AVAILABLE CONCENTRATIONS



ORDERING & PRICING



VITAL TEARS PRICING INCLUDES

Patient Blood Draw

A \$20 fee applies for mobile phlebotomy

Processing & Formulation

of customized Vital Tears

FedEx Shipment

from the blood collection facility to our lab and from the lab to the patient

The actual length of time that a supply of tears will last depends on the concentration and dosage ordered.

Pricing valid through December 31, 2024.



STORING VITAL TEARS

Vital Tears are provided in 3ml aliquots, which last one week in refrigeration and six months frozen.

ABOUT VITAL TEARS

Vital Tears was founded in 2015 with the mission to provide convenient access to autologous serum tears across the United States.

We employ a state-of-the-art process to deliver high-quality, customized serum tears quickly and efficiently to patients who need them.

Our team is committed to serving our patients and clinical partners with excellence.



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2. Hessen M, Akpek EK. Dry eye: an inflammatory ocular disease. *J Ophthalmic Vis Res.* 2014; 9:240-250.
3. Craig JP, Nichols KK, Akpek EK, et al. TFOS DEWS II definition and classification report. *Ocul Surf.* 2017; 15:276–283.
4. Jones L, Downie LE, Korb D, et al. TFOS DEWS II management and therapy report. *Ocul Surf.* 2017; 15:575–628.
5. Starr CE, Gupta PK, Farid M, et al; ASCRS Cornea Clinical Committee. An algorithm for the preoperative diagnosis and treatment of ocular surface disorders. *J Cataract Refract Surg.* 2019;45:669-684.
6. Milner MS, Beckman KA, Luchs JI, et al. Dysfunctional tear syndrome: dry eye disease and associated tear film disorders — new strategies for diagnosis and treatment. *Curr Opin Ophthalmol.* 2017;27:Suppl 1:3-47.
7. Cui D, Li G, Akpek EK. Autologous serum eye drops for ocular surface disorders. *Curr Opin Allergy Clin Immunol.* 2021 1;21(5):493-499.



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