

Eye Serum in Common Ocular Conditions

A Clinical Guide to Eye Serum Across Common Ocular Surface Conditions

THE CENTRAL IDEA

Eye serum is commonly associated with corneal ulcer management, but its biologic value is broader than antiprotease support alone. Serum contains multiple tear-like and epitheliotropic components that can support epithelial health, ocular-surface defense, wound repair, and tear-film function across a range of conditions.

CONDITION > RISK > BIOLOGIC SUPPORT

This guide focuses on five common clinical settings where ocular-surface support may be relevant:

- Keratoconjunctivitis sicca (KCS / dry eye)
- Allergic or inflammatory conjunctivitis
- Corneal trauma and superficial abrasion
- Post-operative ocular-surface support
- Non-ulcerative keratitis and chronic surface irritation

CLINICAL CONTEXT

Eye serum is an adjunct—not a replacement for diagnosis, condition-specific medication, antimicrobial therapy when indicated, pain control, procedural treatment, surgery, or referral.

Why Eye Serum Is More Than Lubrication

Artificial lubricants primarily improve surface hydration and reduce friction. Blood-derived serum adds a biologic layer because it contains components that resemble or complement constituents of the natural tear film. The clinical rationale is not that every component performs one isolated task, but that multiple factors can act in parallel on epithelial cells, extracellular matrix, inflammatory stress, and ocular-surface defense.

A USEFUL WAY TO THINK ABOUT SERUM

Lubrication changes the physical environment of the ocular surface. Serum can also provide biochemical signals and protective proteins that participate in how the surface maintains and repairs itself.

How the Components Work

Component	Primary biologic role	Why it can matter
Proteins	Provide structural, transport, buffering, binding, and trophic functions within serum; individual proteins can also participate in wound protection and surface homeostasis.	The ocular surface depends on more than water. A protein-rich biologic environment can contribute to tissue protection and support the environment in which repair occurs.
Growth factors	Signals such as EGF, VEG-F, and related factors support epithelial-cell proliferation, migration, differentiation, and maturation.	These processes are central to restoring and maintaining an intact corneal and conjunctival epithelium after injury or chronic surface stress.
Fibronectin	An extracellular-matrix glycoprotein that supports cell adhesion and migration across a healing surface.	Fibronectin can help epithelial cells attach to and move across the wound bed—important steps in re-epithelialization.
Antioxidants	Help limit oxidative stress generated during inflammation, tissue injury, and cellular metabolism.	Reducing oxidative burden can help preserve epithelial-cell function in chronically inflamed or injured ocular surfaces.
Immunoglobulins	Participate in immune recognition and defense at exposed mucosal surfaces.	They contribute to the broader antimicrobial and immune-protective environment of tears and serum, although they do not replace antimicrobial drugs when infection is present.
Lysozymes	An innate-defense enzyme with antibacterial activity through disruption of susceptible bacterial cell walls.	It contributes to natural ocular-surface defense as one part of a larger antimicrobial system.
Proteinase inhibitors	Counter proteolytic enzymes that can degrade stromal collagen and extracellular matrix.	This is especially important in corneal ulceration and melting disease, but protease balance is also part of controlling tissue breakdown during inflammation and injury.

A Dry Eye Is More Than a Dry Eye

Keratoconjunctivitis sicca reduces the aqueous contribution to the tear film and can deprive the corneal and conjunctival epithelium of both moisture and normal tear-derived trophic support.

Condition

Reduced tear production can leave the ocular surface chronically dry, inflamed, and less able to maintain a healthy epithelium.

Risk

- Ocular-surface inflammation
- Epithelial compromise
- Corneal pigmentation and vascularization
- Recurrent irritation or secondary ulceration

Why Serum Can Fit

KCS is a clear example of why the distinction between lubrication and biologic support matters. Lubricants add moisture and reduce friction; serum can also supply epitheliotropic factors and tear-like proteins that support epithelial maintenance.

GROWTH FACTORS

Support epithelial proliferation, migration, and maturation when the normal tear environment is deficient.

FIBRONECTIN

Provides a matrix-associated signal that supports epithelial adhesion and migration.

ANTIOXIDANTS

Help counter oxidative stress associated with chronic ocular-surface inflammation.

IMMUNOGLOBULINS + LYSOZYMES

Contribute to natural ocular-surface defense when tear quantity and quality are compromised.

PROTEINS

Provide a broader biochemical environment that more closely resembles the biologic complexity of tears than a simple lubricant.

CLINICAL PEARL

In KCS, the question is not simply whether the eye needs more moisture. It is whether the compromised

surface may also benefit from replacement of some of the biologic functions normally supplied by tears.

2 | ALLERGIC / INFLAMMATORY CONJUNCTIVITIS

Inflammation Changes the Ocular Surface

Conjunctivitis can disrupt the tear film, increase oxidative and inflammatory stress, and create a surface environment that is less comfortable and less stable even when the cornea remains intact.

Condition

Allergic or inflammatory conjunctival disease may present with hyperemia, discharge, irritation, rubbing, chemosis, and secondary tear-film instability.

Risk

- Persistent inflammatory stress
- Surface irritation and friction
- Tear-film instability
- Self-trauma and secondary epithelial injury

Why Serum Can Fit

Serum does not replace identification and treatment of the underlying allergic, immune-mediated, infectious, or irritant cause. Its potential role is supportive: helping maintain the ocular surface while the primary problem is addressed.

ANTIOXIDANTS

Can help buffer oxidative stress that accompanies ongoing inflammation.

GROWTH FACTORS

Support epithelial maintenance if the ocular surface becomes compromised.

PROTEINS

Add tear-like biologic complexity and surface support beyond simple hydration.

IMMUNOGLOBULINS + LYSOZYMES

Contribute to innate and adaptive surface-defense functions.

CLINICAL PEARL

In conjunctivitis, serum is best framed as ocular-surface support—not as a substitute for diagnosis or condition-specific anti-inflammatory, antimicrobial, or immunomodulatory therapy.

3 | CORNEAL TRAUMA / SUPERFICIAL ABRASION

Support the Surface While It Repairs

Mechanical trauma can disrupt epithelial integrity before a lesion becomes a deep or complicated ulcer. Once the surface is injured, epithelial migration, adhesion, and protection from additional breakdown become clinically important.

Condition

Scratches, foreign material, rough play, vegetation, and other trauma may create epithelial disruption or superficial corneal injury.

Risk

- Delayed epithelial closure
- Continued mechanical irritation
- Inflammatory protease activity
- Progression to a more complicated corneal lesion

Why Serum Can Fit

GROWTH FACTORS

Support cellular proliferation and migration during epithelial repair.

FIBRONECTIN

Supports adhesion and migration of epithelial cells across the damaged surface.

PROTEINASE INHIBITORS

Help counter excessive proteolytic activity that can contribute to tissue breakdown.

ANTIOXIDANTS

Help reduce oxidative stress around injured tissue.

CLINICAL PEARL

The same serum mechanisms used in ulcer protocols—epithelial support plus protease control—can be relevant earlier in the injury continuum, while diagnosis and appropriate primary treatment remain essential.

Healing After the Procedure

Ocular procedures can leave the corneal or conjunctival surface temporarily stressed, disrupted, or vulnerable. Post-operative management therefore involves not only controlling the primary disease process, but also supporting surface recovery.

Condition

The specific needs vary by procedure, tissue involved, medications prescribed, and surgeon preference.

Risk

- Temporary epithelial disruption
- Inflammatory and oxidative stress
- Surface discomfort and tear-film instability
- Delayed re-epithelialization in higher-risk patients

Why Serum Can Fit

GROWTH FACTORS

Provide biologic signals associated with epithelial repair, collagen alignment, and maturation.

FIBRONECTIN

Supports epithelial adhesion and migration as the surface re-establishes continuity.

ANTIOXIDANTS

Help buffer oxidative stress during tissue recovery.

PROTEINS

Provide broader trophic and protective support to the recovering surface.

CLINICAL PEARL

Post-operative serum use should follow the treating veterinarian or ophthalmologist's protocol and be integrated with—not substituted for—the prescribed medication and recheck plan.

Chronic Surface Disease Is a Biologic Problem, Too

Not every compromised cornea is ulcerated. Chronic keratitis and other non-ulcerative surface disorders can involve persistent inflammation, altered epithelial behavior, vascularization, pigmentation, and tear-film disturbance.

Condition

The underlying cause may be immune-mediated, exposure-related, tear-film related, infectious, mechanical, or multifactorial.

Risk

- Persistent inflammatory signaling
- Progressive vascularization or pigmentation
- Epithelial instability
- Recurrent discomfort or secondary surface injury

Why Serum Can Fit

GROWTH FACTORS

Support maintenance and turnover of the corneal epithelium.

ANTIOXIDANTS

Help counter chronic oxidative stress associated with inflammation.

FIBRONECTIN

Supports epithelial attachment and migration when the surface is unstable.

IMMUNOGLOBULINS + LYSOZYMES

Contribute to the protective biologic environment at the exposed ocular surface.

CLINICAL PEARL

The value proposition is not that serum treats the underlying cause of every keratitis. It is that serum can add biologic surface support while the underlying disease is being managed.

Putting the Mechanisms Together

The components of serum are most useful when considered as a network rather than a checklist. The ocular surface is constantly balancing epithelial renewal, adhesion, inflammation, oxidative stress, microbial exposure, and extracellular-matrix stability.

Clinical need	Serum components most directly related
Epithelial proliferation / migration	Growth factors, fibronectin
Epithelial adhesion / wound-bed interaction	Fibronectin, growth factors
Limiting tissue breakdown	Proteinase inhibitors
Managing oxidative stress	Antioxidants
Ocular-surface defense	Immunoglobulins, lysozymes, other serum proteins
Broader tear-like biologic support	Proteins + multiple serum constituents acting together

THE LARGER POINT

Eye serum is not simply a more complex lubricant. It is a biologic ocular-surface therapy whose components can participate in several parts of the repair and protection process at the same time.

Where SeroLube Fits

Traditional autologous serum can require patient blood collection, processing, centrifugation, serum transfer, aliquoting, labeling, and dispensing. SeroLube® provides a frozen, ready-made eye-serum option that allows a veterinarian to add serum-based support without producing it in the clinic.

Eye Serum in Moments.

What Eye Serum Does Not Replace

- A complete ophthalmic examination and appropriate diagnostic testing
- Identification and treatment of the underlying cause
- Antimicrobial therapy when infection is present or suspected
- Condition-specific anti-inflammatory or immunomodulatory therapy
- Pain management
- Procedural or surgical treatment when indicated
- Defined rechecks and referral when appropriate

Selected References

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EVIDENCE NOTE

The 2026 veterinary systematic review found that serum formulations were generally well tolerated and supported corneal epithelial healing, while controlled canine trials did not establish superiority over conventional therapy. The guide therefore presents serum as an adjunctive biologic-support strategy and distinguishes mechanistic rationale from condition-specific proof of clinical superiority.

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