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SUPERFICIE OCULARE E INVECCHIAMENTO

14- 15-16 aprile 2016

Congresso SO.SI.

CAMPOFELICE DI ROCCELLA (PA)



**Azienda Ospedaliero - Universitaria
"Policlinico - Vittorio Emanuele"**

**Catania - *Clinica Oculistica*
Direttore: Prof. T. Avitabile**

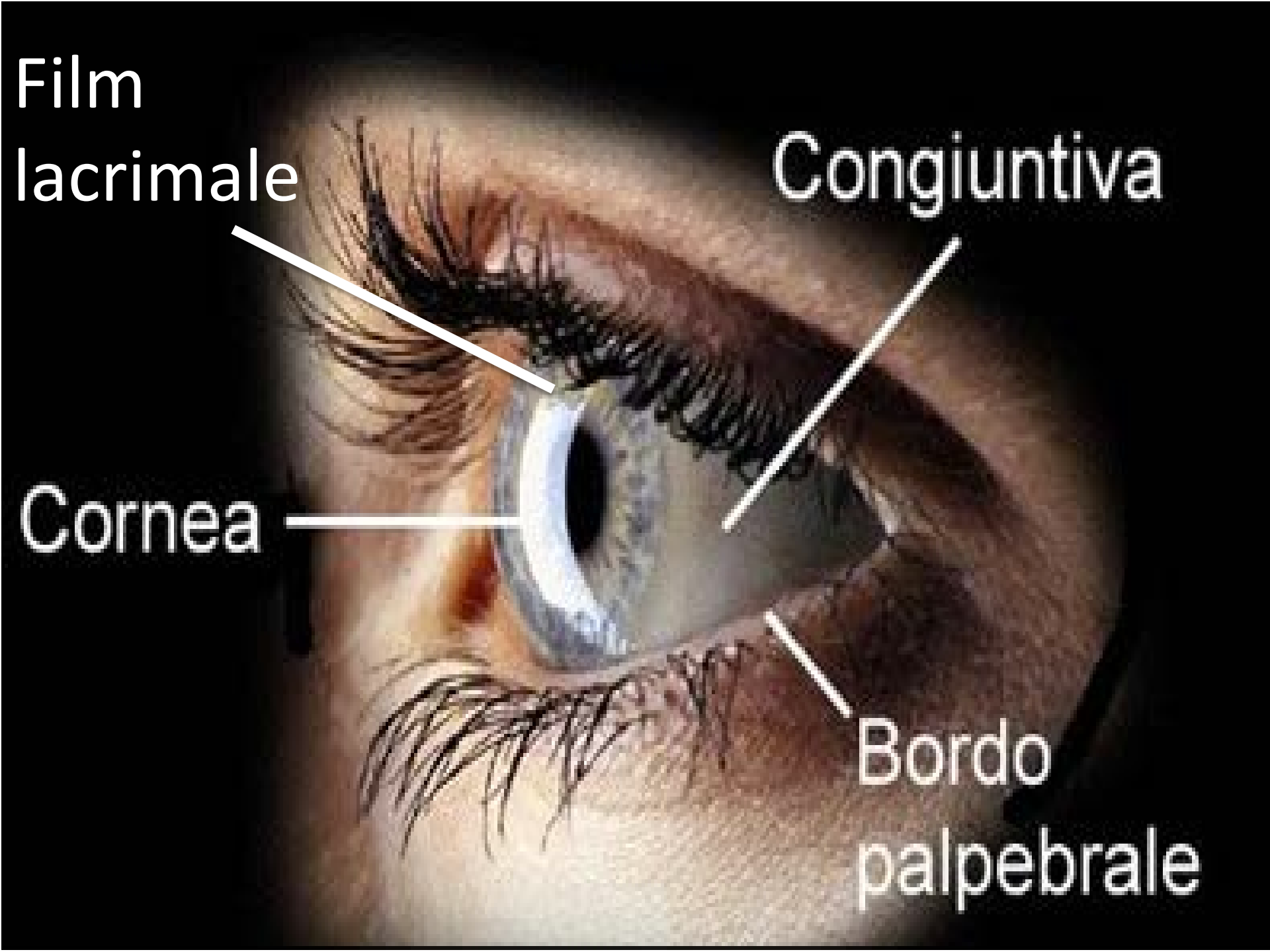


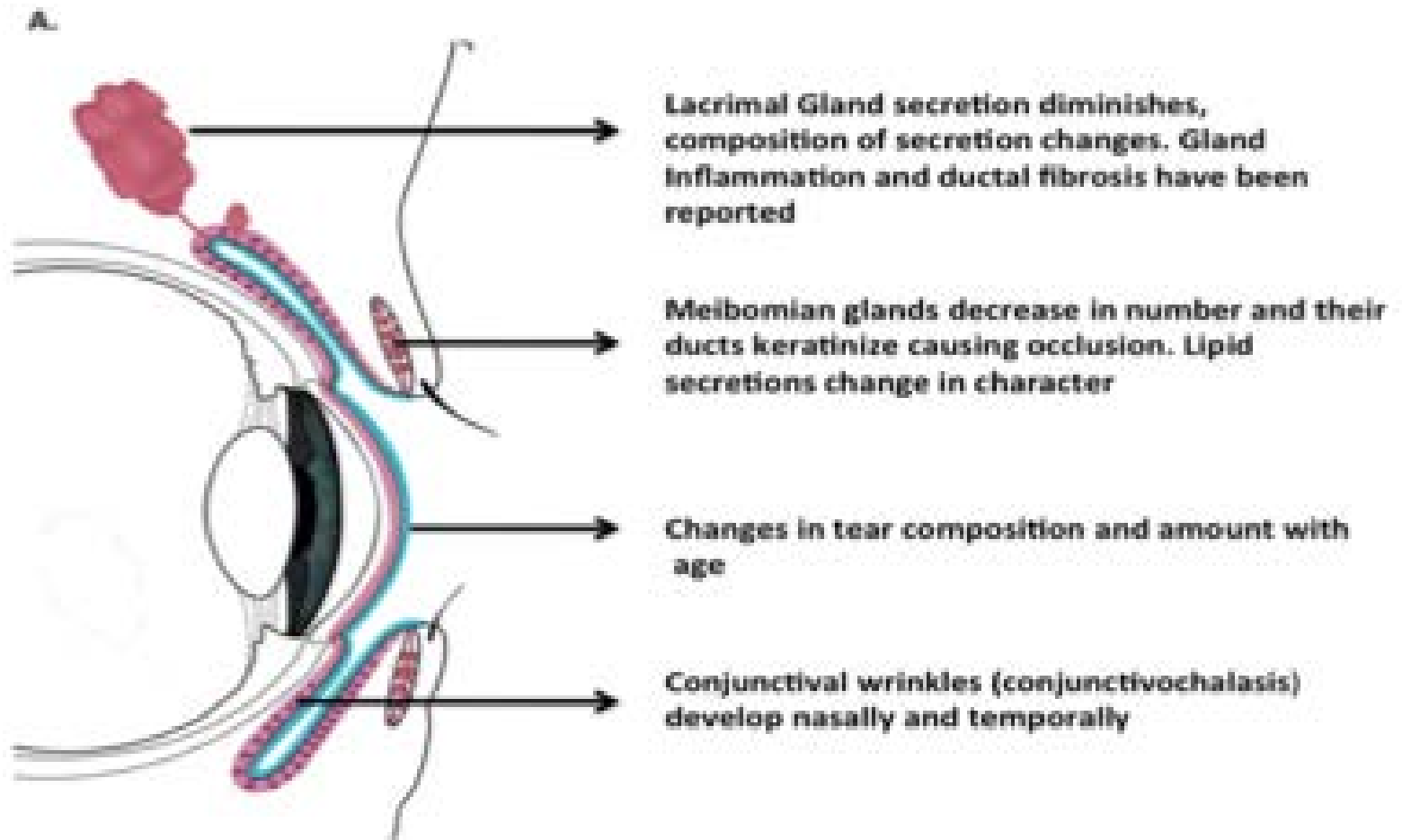
Film
lacrimale

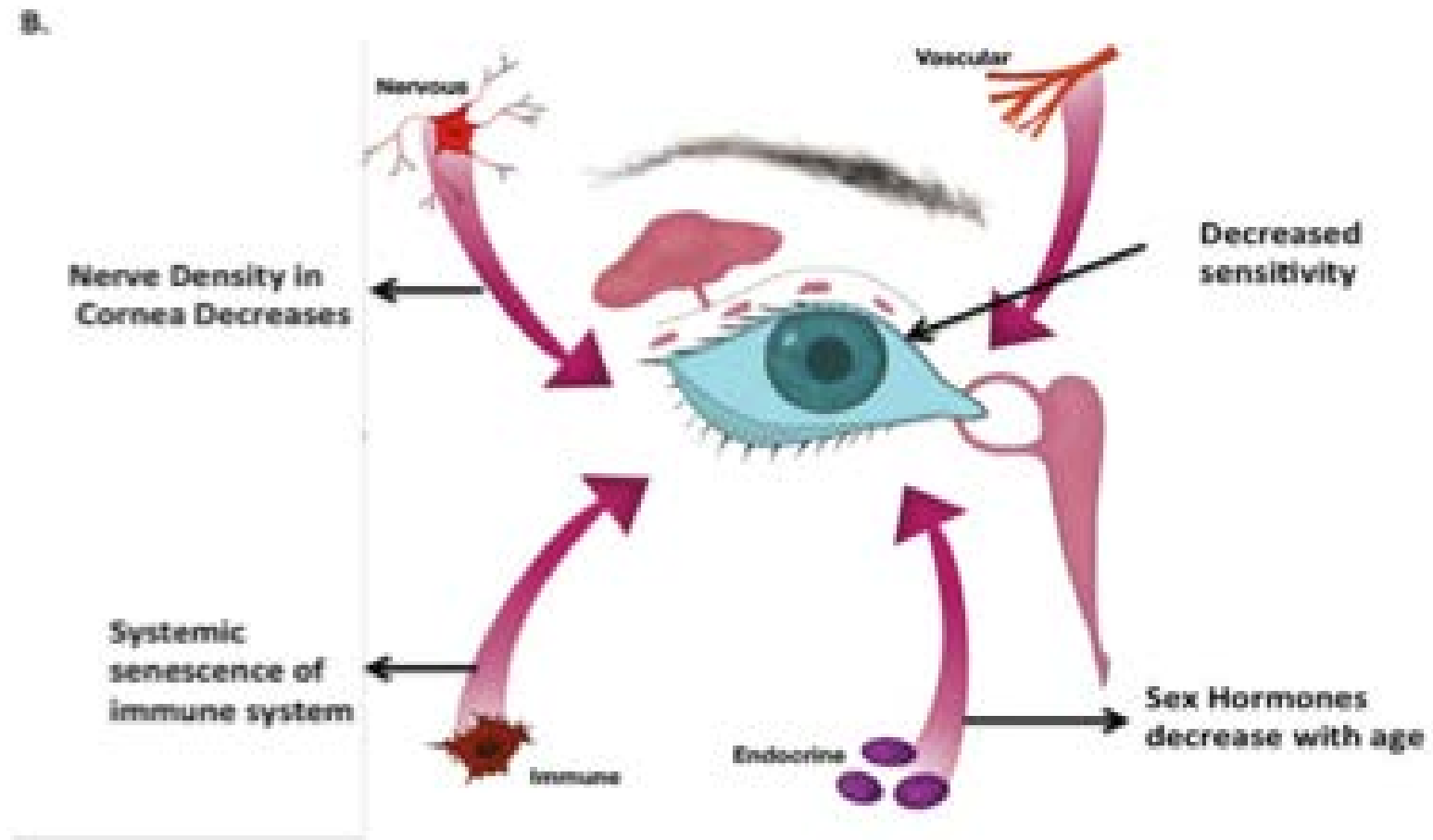
Congiuntiva

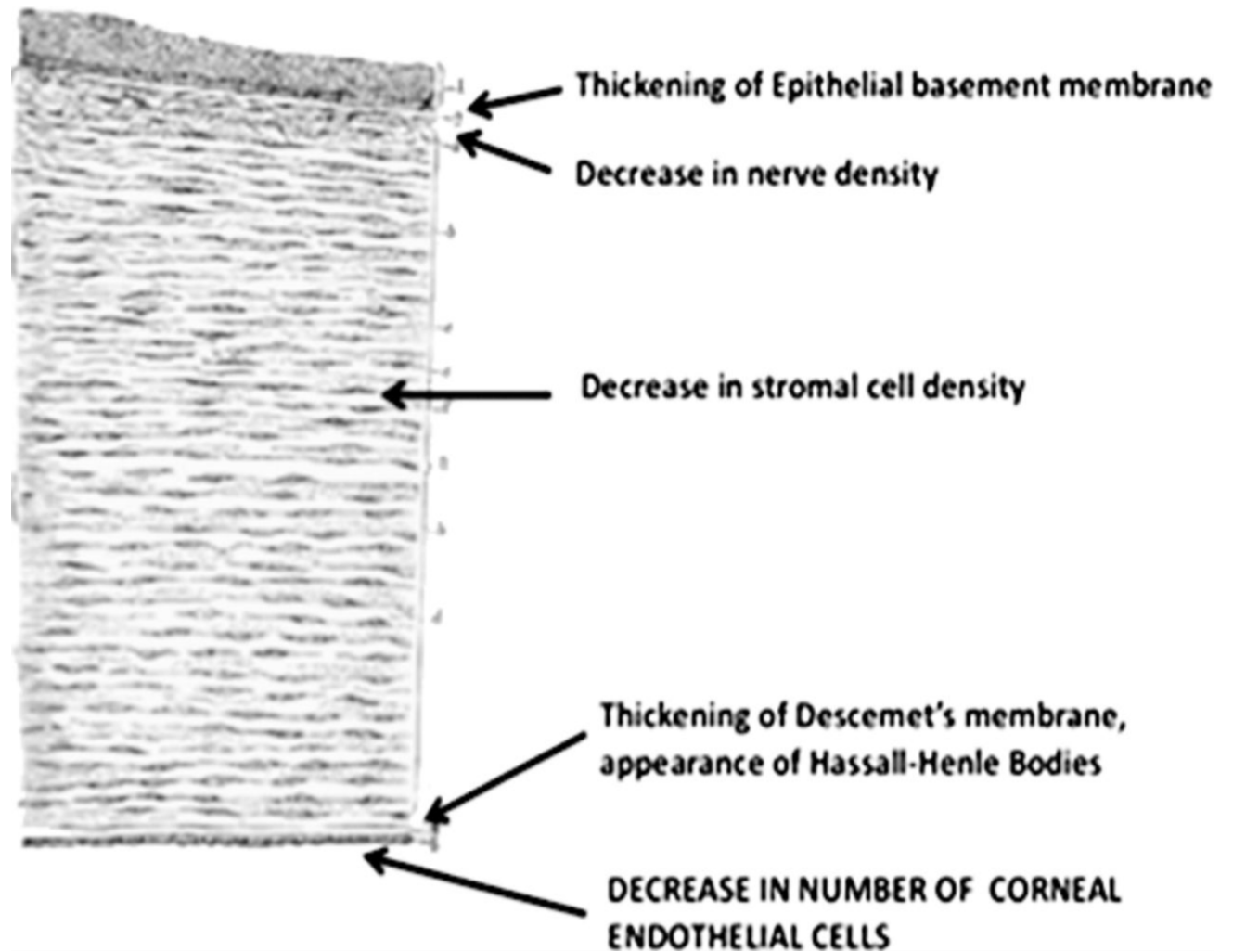
Cornea

Bordo
palpebrale





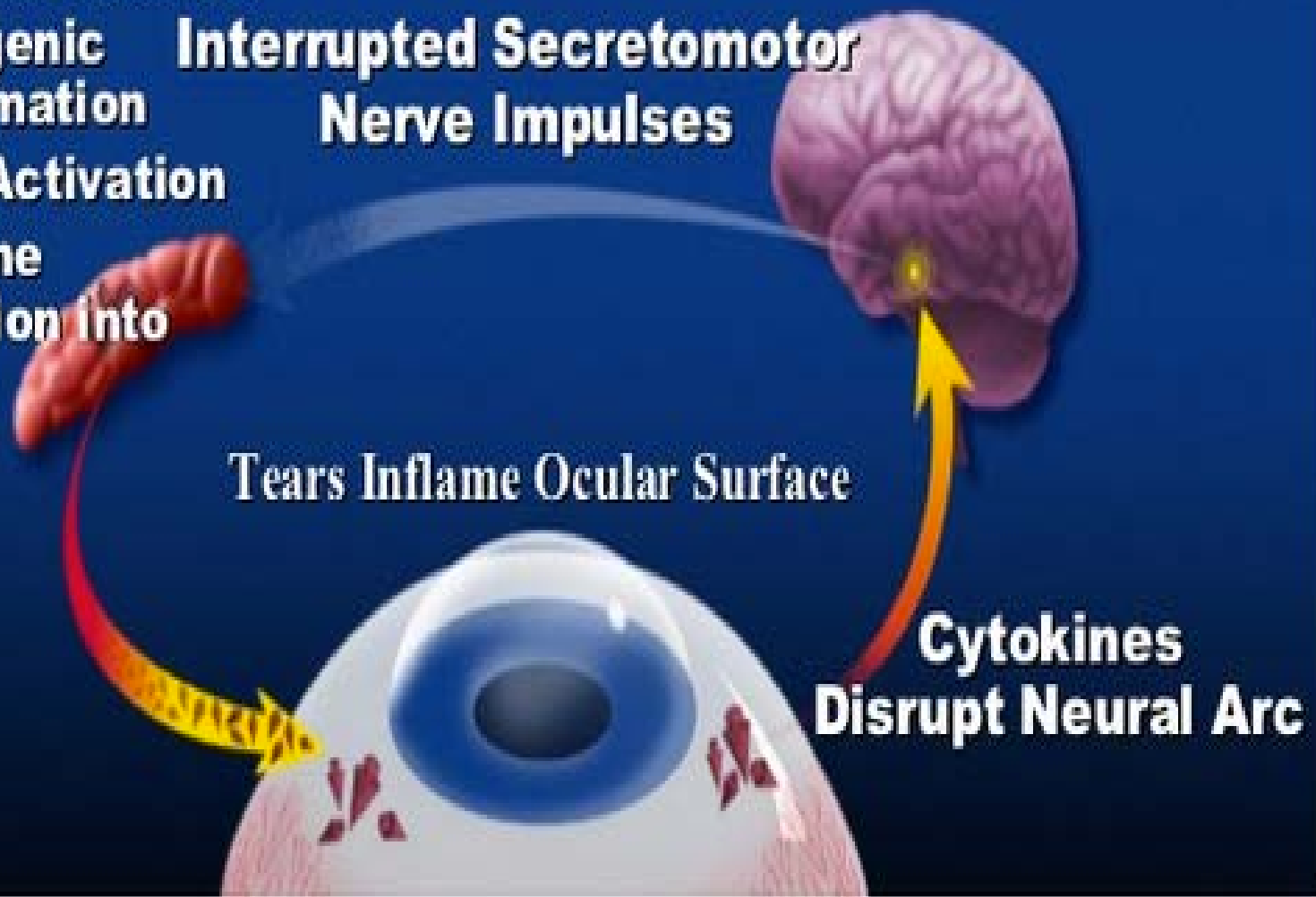




Inflammation disrupts normal neuronal control of tearing.


Lacrimal Glands:

- Neurogenic Inflammation
 - T-cell Activation
 - Cytokine Secretion into Tears
- Interrupted Secretomotor Nerve Impulses**



Tears Inflamm Ocular Surface

Cytokines Disrupt Neural Arc

A microscopic image of a corneal endothelium, showing a central area of cell loss or damage. The surrounding cells are large and polygonal, while the central area is smaller and more irregular, indicating a defect in the endothelial layer.

Qualsiasi disfunzione della superficie oculare e delle palpebre o patologie legate al sistema nervoso possono portare alla sindrome dell'*occhio secco* o *cherato-congiuntivite secca*, caratterizzata da una sintomatologia variabile da lieve a severa ed una compromissione della qualità della visione.

Ripristinare la normale composizione del film lacrimale o mimarlo è considerato l'approccio terapeutico migliore nel trattamento della secchezza oculare.

Is dry eye an environmental disease?

[Alves M¹](#), [Novaes P²](#), [Morrays Mde A³](#), [Reinach PS¹](#), [Rocha EM¹](#).

[Invest Ophthalmol Vis Sci.](#) 2006 Oct;47(10):4309-15.

Dry eye: an inflammatory ocular disease.

[Hessen M¹](#), [Akpek EK¹](#).

Tear film osmolarity: determination of a referent for dry eye diagnosis.

[Tomlinson A¹](#), [Khanal S](#), [Ramaesh K](#), [Diaper C](#), [McFadyen A](#).

[Exp Eye Res.](#) 2006 May;82(5):885-98. Epub 2005 Nov 23.

[J Ophthalmol.](#) 2014;2014:1683. doi: 10.1155/2014/781683. Epub

Effect of inflammation on lacrimal gland function. Aging: a risk factor for dry eyes.

[Zoukhri D¹](#).

[Br J Ophthalmol.](#) 2014 Mar;98(3):371-6. doi: 10.1136/bjophthalmol-2012-302705.

Low levels of 17- β -oestradiol, oestrone and testosterone in women with evanescent and chronic tear film instability syndrome in postmenopausal women: a cross-sectional study.

[Gagliano C¹](#), [Caruso S](#), [Napolitano G](#), [Malagù M](#), [Cassella P](#), [Cassella C](#), [Drago F](#), [Avitabile T](#).

[J Ophthalmol.](#) 2012;2012:28585.

The role of medication in dry eye disease.

[Fraunfelder FT¹](#), [Sciubba JJ](#), [Zoukhri D¹](#).

Tearful relations: oxidative stress, inflammation and eye diseases.

[Wakamatsu TH¹](#), [Dogru M](#), [Tsubota K](#).

The international workshop on meibomian gland dysfunction: report of the subcommittee on anatomy, physiology, and pathophysiology of the meibomian gland.

[Knop E¹](#), [Knop N](#), [Millar T](#), [Obata H](#), [Sullivan DA](#).

[Invest Ophthalmol Vis Sci.](#) 2007 Apr;48(4):1552-8.

Involvement of oxidative stress on corneal epithelial alterations in a blink-suppressed dry eye.

[Nakamura S¹](#), [Shibuya M](#), [Nakashima H](#), [Hisamura R](#), [Masuda N](#), [Imagawa T](#), [Uehara M](#), [Tsubota K](#).

DRY EYE: STATO DELL'ARTE



E il futuro?

LATTOFERRINA...

- ✓ ANTIMICROBICA
- ✓ ANTIOSSIDANTE
- ✓ ANTINFIAMMATORIA
- ✓ INIBISCE LA FORMAZIONE DEL BIOFILM
- ✓ LEGA LO IONE Fe +3
- ✓ RIDOTTI LIVELLI NELL'INVECCHIAMENTO E IN PRESENZA DI PATOLOGIE (DRY EYE, SJOGREN, CONGIUNTIVITI, TRACOMA, CHERATOPATIE, DISTROFIA MUSCOLARE AMIOTROFICA)
- ✓ SECRETA IN MAGGIORE CONCENTRAZIONE NEL FLUIDO LACRIMALE PRODOTTO A OCCHIO APERTO
- ✓ PRODOTTA SOLO DA CELLULE EUCAROTICHE

Br J Ophthalmol. 2006 Mar;90(3):372-7.
Proteomic analysis of human meibomian gland secretions.
Tsai PS¹, Evans JE, Green KM, Sullivan RM, Schaumberg DA, Richards SM, Dana MR, Sullivan DA.

Ophthalmic Res. 2005 Sep-Oct;37(5):270-8. Epub 2005 Aug 9.

Lactoferrin expression by bovine ocular surface epithelia: a primary cell culture model to study lactoferrin gene promoter activity.

Santagati MG¹, La Terra Mulè S, Amico C, Pistone M, Rusciano D, Enea V.

Lactobionic Acid Anti-Aging Mechanisms: Antioxidant Activity, MMP Inhibition, and Reduction of Melanogenesis

Irina Brouda, MA, Brenda L. Edison, BA, Ronni L. Weinkauff, PhD, Barbara A. Green, RPh, MS
NeoStrata Company, Inc., Princeton, NJ, USA

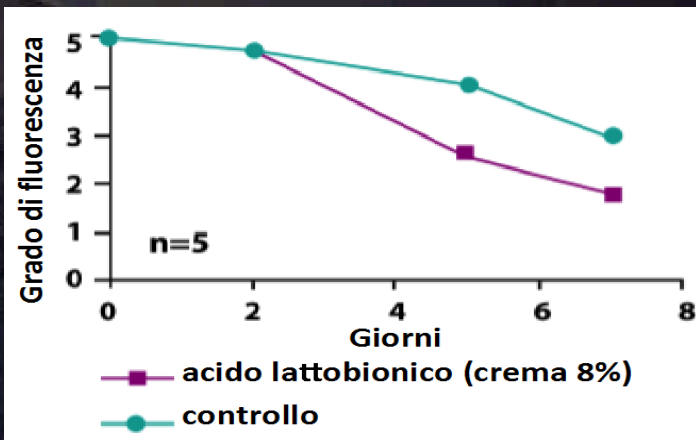
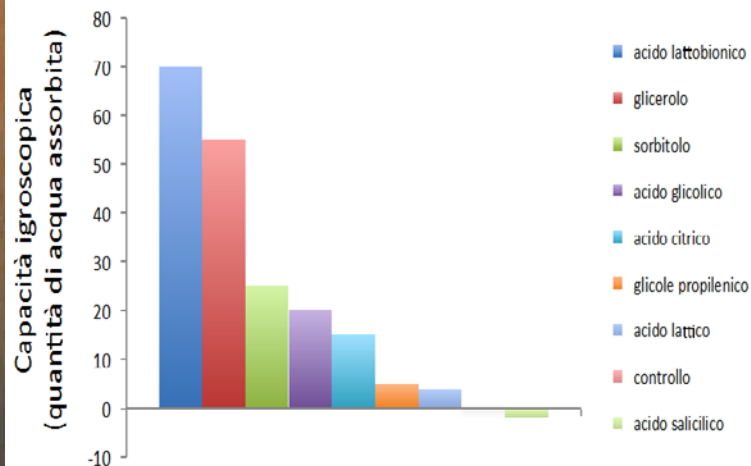
... E ACIDO LATTOBIONICO

- Proprietà idratante

- Proprietà anti-age: favorisce l'aumento di spessore del derma, ma anche la riduzione dell'invecchiamento indotto dai raggi solari.

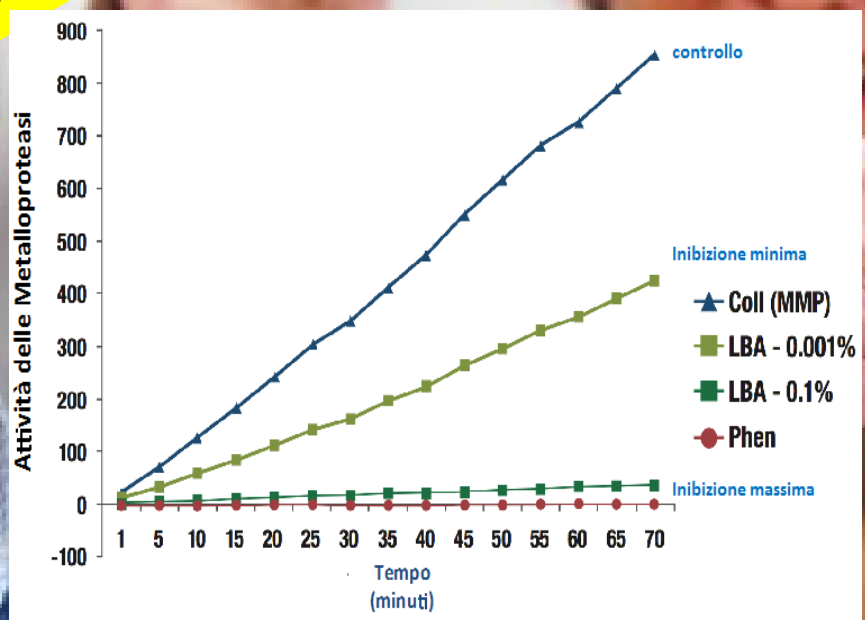
- Proprietà cicatrizzante: è dotato di notevole compatibilità cutanea e influenza positivamente sia la rigenerazione tissutale che il *wound healing*.

Capacità igroscopica dell'acido lattobionico

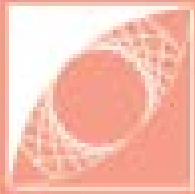


- **Proprietà antiossidante:**
 - ottimo chelante del ferro, ne lega 120 volte in più rispetto alla lattoferrina sequestrandolo dall'ambiente circostante;
 - principale costituente dei fluidi in cui vengono conservati gli organi da trapiantare, similmente al trealosio;
 - Aumenta il turgore cellulare e corregge i segni istologici dell'invecchiamento cutaneo.

- **Proprietà antiinfiammatoria** inibisce:
 - le metalloproteasi, (in particolar modo la MMP-9);
 - la degradazione tissutale propria dei processi infiammatori;
 - lo squilibrio ossidativo, delle difese antimicrobiche e infiammatorio caratteristico dell'occhio secco.



- Contributo all'**attività batteriostatica** del film lacrimale



NEST

NEUROVISUAL SCIENCE TECHNOLOGY

Clinical Investigation Plan Proposal

“Study to Evaluate Safety, and Efficacy Assessment of Lactobionic Acid for the Treatment of Dry Eye Syndrome”

Purpose

The study is designed to assess the safety and efficacy of Lactoyal[®], a special **eye** drop containing lactobionic acid, in the treatment of **dry eye** syndrome. Lactoyal[®] is being compared to another **eye** drop, identical in composition except that it does not contain the active ingredient, lactobionic acid. Some subjects are to receive Lactoyal[®] treatment, while others are to receive the vehicle (hyaluronic acid); the assignment of subjects to receive either Lactoyal or hyaluronic acid is to be random. The two-week treatment phase is followed by a one week follow-up period to evaluate safety of Lactoyal[®].

[Eye Contact Lens](#). 2015 May;41(3):133-40. doi: 10.1097/ICL.000000000000104.

Autologous serum eye drops for the treatment of ocular surface disease.

[Azari AA](#)¹, [Rapuano CJ](#).

[Int J Pharm Compd](#). 2015 May-Jun;19(3):252-60.

Protocol of Blood Serum Eye Drops.

[Katsakoulas J](#), [Lougovoï C](#), [Paraskevopoulou P](#), [Vougioukas N](#).

[Biomed Res Int](#). 2014;2014:826970. doi: 10.1155/2014/826970. Epub 2014 Jul 22.

Evaluation of the efficacy of 50% autologous serum eye drops in different ocular surface pathologies.

[Semeraro F](#)¹, [Forbice E](#)¹, [Braga O](#)¹, [Bova A](#)¹, [Di Salvatore A](#)¹, [Azzolini C](#)².

**LA MIA ESPERIENZA: IL COLLIRIO DI
SIERO AUTOLOGO IN ALTERNATIVA
ALLE TERAPIE CONVENZIONALI**



[Transfus Apher Sci](#). 2015 Aug;53(1):92-4. doi: 10.1016/j.transci.2015.05.015. Epub 2015 Jun 9.

Serum eye drop preparation in Australia: Current manufacturing practice.

[Marks DC](#)¹, [Fisher J](#)², [Mondy P](#)², [Segatchian J](#)³, [Dennington PM](#)².

[Int J Pharm Compd](#). 2014 Sep-Oct;18(5):370-7.

Autologous serum eye drops for severe dry eye syndrome in a patient with chronic graft-versus-host disease: a case report.

[Mixon B](#)¹, [Mixon J](#), [Isbey EK 3rd](#), [Sprinkle S](#).

[Cornea](#). 2015 Oct;34(10):1214-20. doi: 10.1097/ICO.0000000000000542.

Effectiveness of Autologous Serum Eye Drops Combined With Punctal Plugs for the Treatment of Sjögren Syndrome-Related Dry Eye.

[Liu Y](#)¹, [Hirayama M](#), [Cui X](#), [Connell S](#), [Kawakita T](#), [Tsubota K](#).

REVIEW ARTICLE OPEN

A glimpse at the aging eye

Jonathan B Lin^{1,2}, Kazuo Tsubota³ and Rajendra S Apte^{1,2,4,5}

Extensive investigations have demonstrated that organismal aging is associated with tissue dysfunction in many organs. The eye is no exception to this rule. Under healthy conditions, the eye is designed like an advanced camera with the central role of translating light from the external world into a coherent neural signal that can be transmitted to the brain for processing into a precise visual image. This complex process requires precisely maintained machinery. At the front of the eye, the transparency of both the cornea and the lens are crucial to allow passage of photons to the light-sensitive portion of the eye. Similarly, the highly organized structure of the retina located at the back of the eye is indispensable to allow for effective signal transduction and efficient signal transmission. Aging affects ocular structures in various ways, and these sequelae have been well defined as distinct clinical entities. In many instances, aging leads to ocular tissue dysfunction and disease. Nonetheless, despite clear evidence that age-associated visual impairment has significant psychosocial consequences, current treatment paradigms for many of these conditions are inadequate. In addition, strategies to decelerate or reverse age-associated deterioration in ocular function are still in their infancy. This review focuses on the cellular and molecular pathophysiology of the aging eye. Ultimately, we hope that a refined understanding of the aging eye can guide targeted therapies against cellular aging and disease.

npj Aging and Mechanisms of Disease (2016) **2**, 16003; doi:10.1038/npjamd.2016.3; published online 10 March 2016

“... a refined understanding of the aging eye can guide targeted therapies against cellular aging and disease.”

The background of the image is a close-up view of water with a complex, wavy pattern. The colors are predominantly shades of green and blue, with some darker, almost black, areas interspersed. The light reflects off the surface, creating a shimmering, iridescent effect. The overall texture is organic and fluid.

GRAZIE PER
L'ATTENZIONE!