



# DRY EYES SYNDROME (DES)

- **Prevalence - 1/3rd of the adult population**
- **< 40yrs - More common in males, > 40yrs - More common in females**
- **Precipitating Factors - Urbanization, Desk job, Cigarette smoking, Allergies**
- **Longer the presence longer the treatment necessary**

## Foreword

Eyes are one of our windows to the wonders of the world, and the nature has perfected its design to pin point precision, literally! This precision instrument necessitates that its surface be kept optimally wet and smooth at all times for its well being. Eyes are bathed by a uniformly distributed multilayered **tearfilm** which serves to protect, heal routine damages and as well provide a ultra smooth surface for refraction of light. It is worthy to appreciate that its the corneal surface that contributes to 2/3rds of the focusing capabilities of the eye, the rest 1/3rd coming from the natural crystalline lens inside our eyes. A smooth and wet corneal surface refracts the light uniformly, preventing unwanted reflections that are usual from a irregular surface, thus avoiding glare, pain and substandard vision.

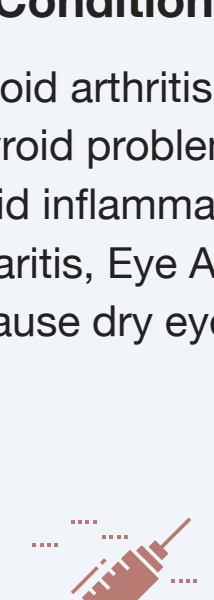
### Tear film consists of 3 layers :

- A inner mucin layer which sticks to the eye surface
- A major aqueous layer which protects and smoothens
- A outer oily layer which prolongs the tear retention by stabilizing it.

### What are the symptoms experienced in Dry eye syndrome?

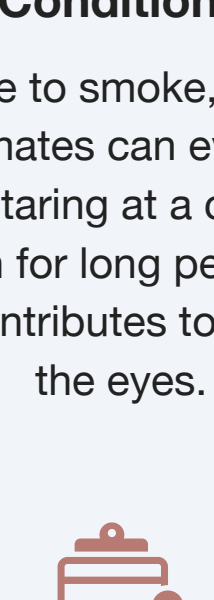
- A stinging, burning or scratchy sensation in your eyes. A Gritty feeling more so later in the day.
- Eye fatigue, Variable visual difficulties, Inability to hold focus well.
- Sensitivity to light
- Eye redness.
- Difficulty wearing contact lenses
- Difficulty with nighttime driving
- Oddly so, sometimes Watery eyes, which is the body's response to the irritation of dry eyes. But this excess water drains out easily and may not serve well in chronic cases.

### Dry eyes can develop for many reasons, including:



#### Age

With increasing age, incidence of dry eye increases. But nowadays even kids with specific risk factors manifest dry eyes



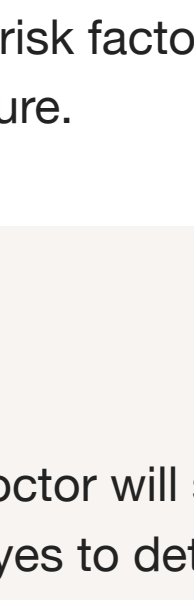
#### Gender

Menopause causes a significant deviation in hormonal layout and is known to cause dry eyes.



#### Medical Conditions

Rheumatoid arthritis, Diabetes and Thyroid problems. Also, Eyelid inflammation - Blepharitis, Eye Allergies cause dry eyes.



#### Environmental Conditions

Exposure to smoke, wind and dry climates can evaporate tears. Staring at a computer screen for long periods of time, contributes to drying of the eyes.



#### Medications

Antihistamines, Decongestants, Some BP medications and Antidepressants, can reduce tear production.



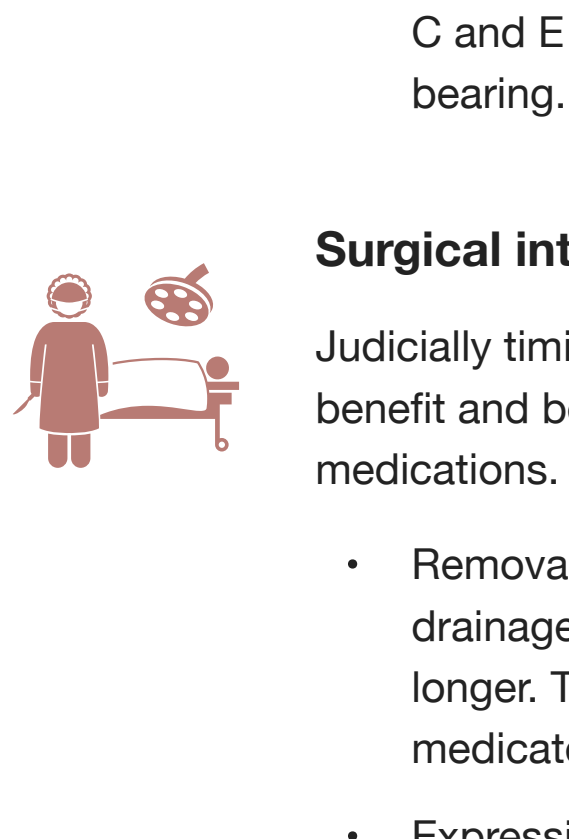
#### Other Factors

Contact lenses. Eye surface surgeries can cause dry eyes for variable periods of time.

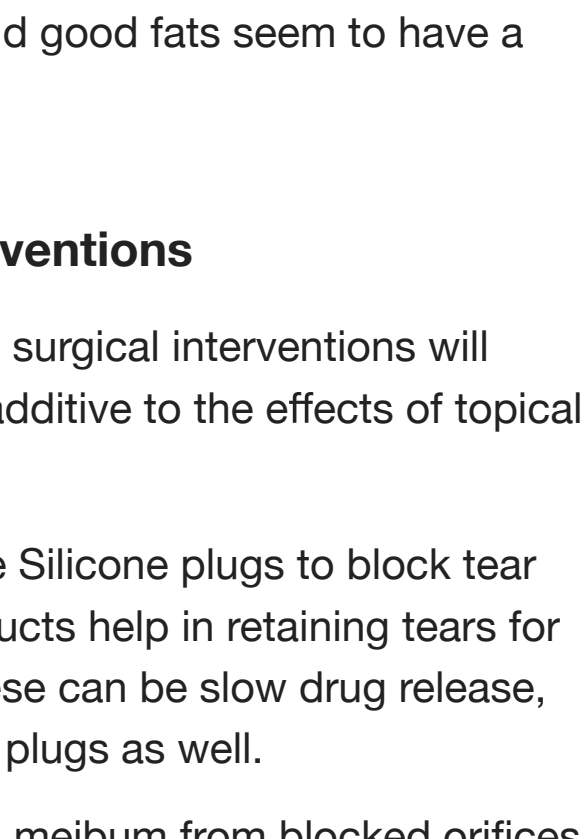
You may need to fill out a Pre-examination questionnaire for better understanding and have a clear discussion with your eye care provider to determine the risk factors involved. This will help you modify the risk factors and ensure follow ups required to ensure cure.

## Dry Eye Management

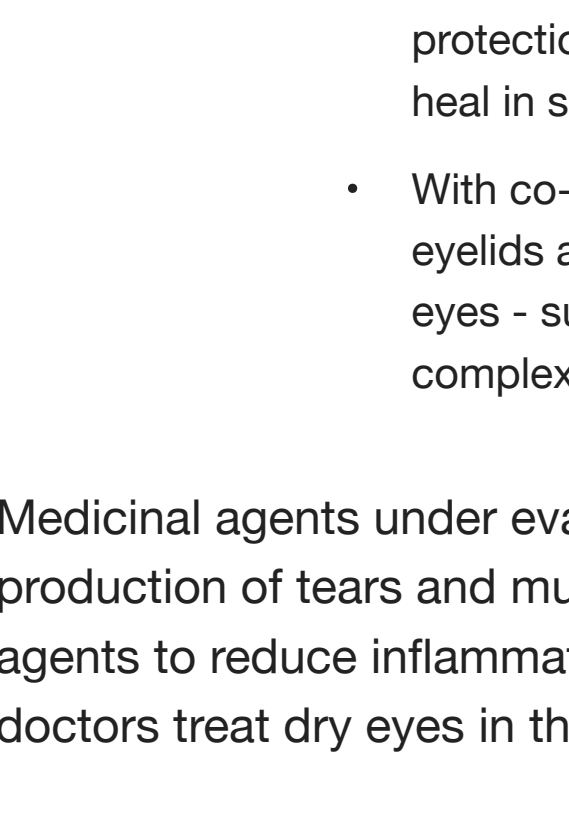
After the preliminary eye exams, the doctor will subject you to slit lamp exam of Eyelids and Eyes to determine the presence of and the clinical stage of dry eye. This exam is important to rule out any co-morbid conditions contributing to the dry eyes. A discussion about the risk factors and correlating the signs present will direct the doctor towards a probable diagnosis. Further, as the need of the case dictates, few tests may be required -



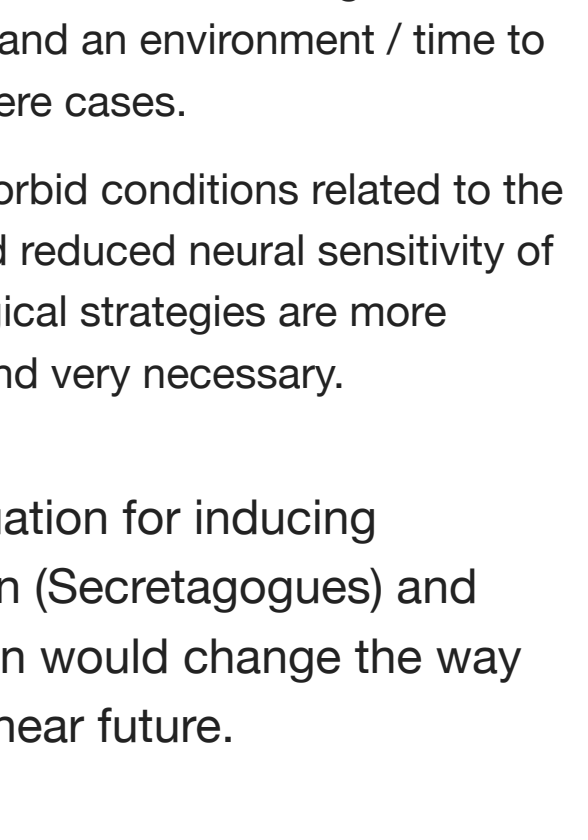
Schirmers paper strip test to estimate the aqueous volume



Flourescien staining to determine Tear Break-up time



Flourescien and Lissamine stains to observe the corneal staining pattern

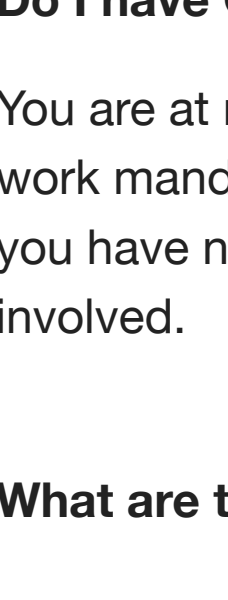


Additional informative investigations, made possible by cutting edge technology, include LipiView® to ascertain Meibomian gland architecture.

Newer approaches in investigating a dry eye include measuring the Tear Osmolarity by obtaining tears with micropipette or by special strips of paper, Impression cytology to map the density of mucin producing cells on the surface of the eye. These tests rather than end tests, in future would be used to diagnose and monitor dry eyes regularly.

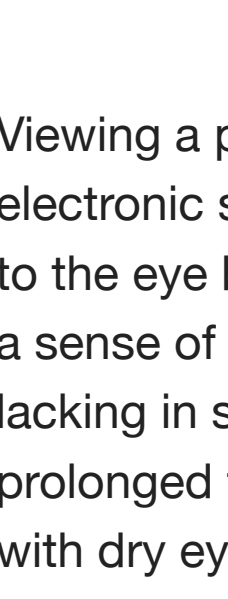
## Treatment Management

Dry eye syndrome is a chronic and typically progressive condition. But in most cases, dry eyes can be managed successfully, usually resulting in noticeably greater eye comfort, fewer dry eye symptoms, and less disturbed vision as well.



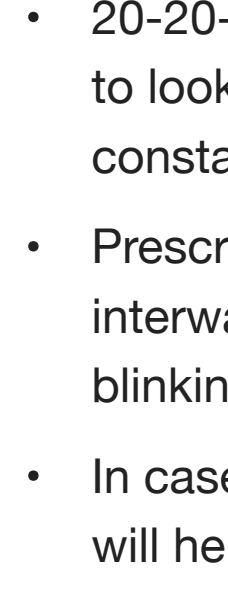
### Patient Education

This pertains to mainly understanding the importance and working of different elements of Tear film. By this knowledge one is in a better position to understand the causes of Dry eyes and the various factors, presence or absence of, which effects the progression in the cascade of the syndrome.



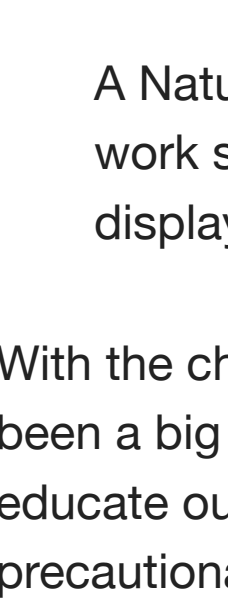
### Occupational and Habitual Modifications

Prevention is better than cure, so they say, and they could not have said it better. Even though a oily layer forms a protective layer to the tearfilm, this albiet normal, can get disrupted in some situations more easily.



### Medicinal Applications

These agents serve to substitute and assist in the working of tearfilm components. In mild to moderate cases where the causative factor is fairly identifiable, a short course of a lubricant and Dry eye education will suffice. In more chronic cases lubricants need to be selected suitably based on the actions of its components.



### Home Remedies

- Warm compresses followed by lid scrubs are cornerstone in blepharitis management.
- Cold water splashes after exposure to smoke and dust reduces inflammation.
- Restrict AC and excessive fan speed. Closing that roadside window may prove helpful in some situations
- Nutrition plays a important role too. Vit A, C and E and good fats seem to have a bearing.



### Surgical interventions

Judicially timing surgical interventions will benefit and be additive to the effects of topical medications.

- Removable Silicone plugs to block tear drainage ducts help in retaining tears for longer. These can be slow drug release, medicated plugs as well.
- Expression meibum from blocked orifices on the lid margin may be required periodically in some. Instruments like LipiFlow® thermal pulsation system (TearScience) express clogged meibum secretions with minimal discomfort. EyeLight® (Topcon) is a non-interventional light therapy for meibomian gland disorder.
- A bandage contact lens can give corneal protection and an environment / time to heal in severe cases.
- With co-morbid conditions related to the eyelids and reduced neural sensitivity of the eyes - surgical strategies are more complex and very necessary.

Medicinal agents under evaluation for inducing production of tears and mucin (Secretagogues) and agents to reduce inflammation would change the way doctors treat dry eyes in the near future.

## Myth

A healthy young person cannot have dry eyes. Dry eyes are common in old age, No big deal!

## Fact

Any technoholic spending more than 2 hrs viewing a screen is at risk of Dry eyes. Increased incidence of Allergies in younger generation compounds the situation.



Dry eyes in old age is quite common but treating it will improve visual usability. Neglecting early symptoms may lead the disease to progress and treatment becomes more complex.



## Latest From the Block

### Computer Vision Syndrome (CVS)

As our society is seeing paradigm shift in its functioning and practises we are bound to push the abilities of our body's natural design. Computer Vision Syndrome is an ailment which ubiquitously affects electronic screen viewers to different grades. The word Syndrome in the name indicates the multi nature of the factors involved. CVS affects invariably any, who spend more than 2 hours a day viewing any sort of electronic screens. The severity of the condition is in direct relation to the discrepancy in the visual need and the visual abilities of the individual.

#### Do I have CVS ?

You are at risk if you are moderately technoholic or your work mandates prolonged screen viewing and till date if you have not made efforts to mitigate the risk factors involved.

#### What are the symptoms of CVS?

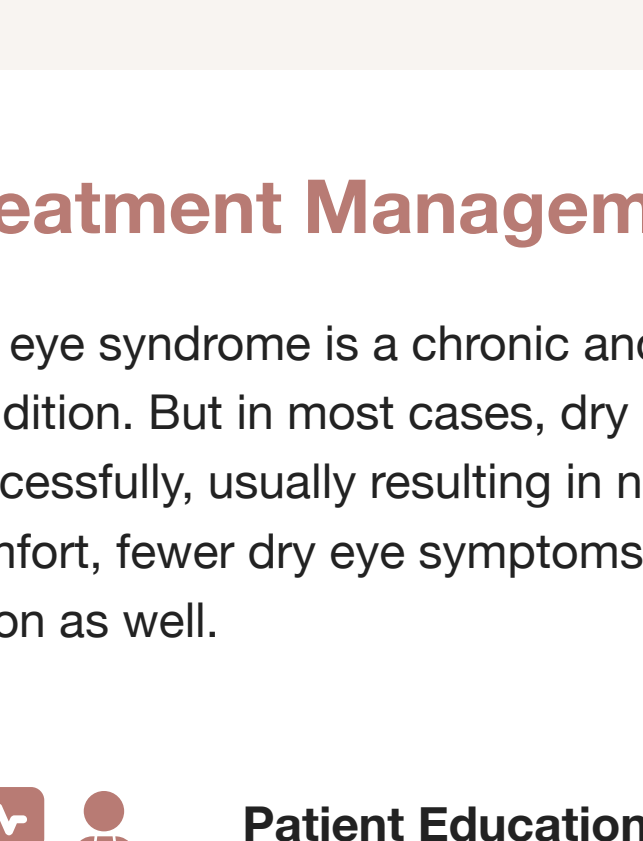
- Eye fatigue
- Burning / Heaviness of eyes
- Headache - more commonly in vicinity of eyebrows, forehead and temples
- Blurry vision - more so after a period of work
- Associated Neck and Shoulder pain

Viewing a printed material like a book and reading from a electronic screen constantly are different types of stimuli to the eye brain complex. Prints have better contrast and a sense of depth given by spatial orientation which is lacking in screen viewing. This results in loss of prolonged focus, inducing refocus efforts. Include this with dry eyes due to cold, dry AC air and reduced blinking, CVS manifests.

#### How do I approach my CVS?

The approach has to be tailored to each individual.

- Precise and good quality spectacle correction with a anti-glare coating.
- 20-20-20 rule - A 20 second break from near work to look at a distance of 20 feet away after 20mins of constant near work is recommended.
- Prescription lubricating drops used at appropriate intervals will mitigate the affects of decreased blinking and dessication from cold dry air.
- In case eye balance muscles are weak, exercises will help.
- Ergonomics



CORRECT AND INCORRECT SITTING POSITION

A Natural non-stressed body position, Adjustable work sation furnitures, Good quality computer display - all have a major bearing in the long run.

With the changing lifestyles of the modern man, CVS has been a big concern already. Time has come that we educate ourself and others as well about installing precautionary steps. Dedicated Computer vision clinics to tailor the advises to individuals is the need of the hour.