MARCH 2022

INSIGHT

Bi-monthly Herald of the Association of Schools & Colleges of Optometry (ASCO-INDIA)

ASCO INDIA
Association of Schools and Colleges of Optometry

ARTICLES TO HELP YOU THROUGH

FROM THE PRESIDENT'S DESK

Another year... another batch of optometrists... another set of concerns... another bunch of achievements!

Welcome to 2022!

Education has been the worst sufferer during COVID times. However, let us not delve and dwell in the past. Let us welcome the crisp and fresh new year with the brightness of sunlight and freshness of cool breeze. We have come out of the tunnel of darkness and it's time that we pull up our socks and get down to business.

FROM THE PRESIDENT'S DESK

It might seem that ASCO India has not been conducting any activities. That is not true at all. We have planned out a bunch of activities and events to cater to every optometrist's taste. Please stay tuned for information on a plethora of great educational events that we have planned, just for you.

Education is the key to your well-being. It is an investment which always pays dividends throughout one's life. There is no possibility of incurring losses in this investment.

However, education should not be pursued to obtain the "papers" called "degrees" or "certificates". They will follow on their own. Education should be pursued to become a better human being, to obtain knowledge and proficiency, to give back something to the society and fellow humans. Gain knowledge from wherever you can. That should be the motto. We, at ASCO India believe in exchange and transfer of knowledge, making each of us a better optometrist, a humane human, and a wonderful citizen of the world. Let us walk "along" and achieve greater goals!

FROM THE PRESIDENT'S DESK

Talking of education, I am reminded of a sloka from Hitopdesha...

Vidya dadati vinayam,

Vinayaad yaati patrataam,

Patratvaad dhanam aapnoti,

Dhanaad dharmam, tatah sukham!

True and complete knowledge gives discipline, from discipline comes worthiness, from worthiness one gets wealth, from wealth (one does) good deeds, from that (comes) joy.

This, my friends is the essence of education! Enjoy what you do and make our world a great place to live...

Aditya.

The fellowship is offered in three specialties:

- **Contact lens**
- **Low vision care**
- **Vision therapy**

The students in each speciality get hands-on training from mentors from the contact program of Fellowship.

The application for FASCO is open for the next batch.

The details can are available on: www.asco-India.org

> FACILITATE. EDUCATE. UPGRADE.

FASCO

Facilitate. Educate. Upgrade.

Fellowship of Association of Schools and Colleges of Optometry (FASCO) in India is an initiative by ASCO to encourage and inculcate continuous learning among Optometrist in India and abroad.

fASCO
FELLOW OF ASSOCIATION OF SCHOOLS & COLLEGES OF OPTOMETRY

VISUAL PERCEPTION OF REALITY

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To a naïve observer world is what he/she can see with their eyes and up to most extent they are right but the truth is that the visual perception is constructed by our brain. Our brain devotes nearly 30 areas (Shinshuke shimojo et al, 2001) for processing the visual inputs sent by two eyes. The output of this complex and sophisticated computational mechanism is the perception of the world, that we can see the moment we open our eyes. These all appears kind of ordinary to us as we don't know what is going on behind the scene, but we get surprised when there is discrepancy between our perception and reality. The best example of that is optical illusion. In this article we will try to understand the difference between visual perception and reality by studying few interesting optical illusions.

VISUAL PERCEPTION VS REALITY

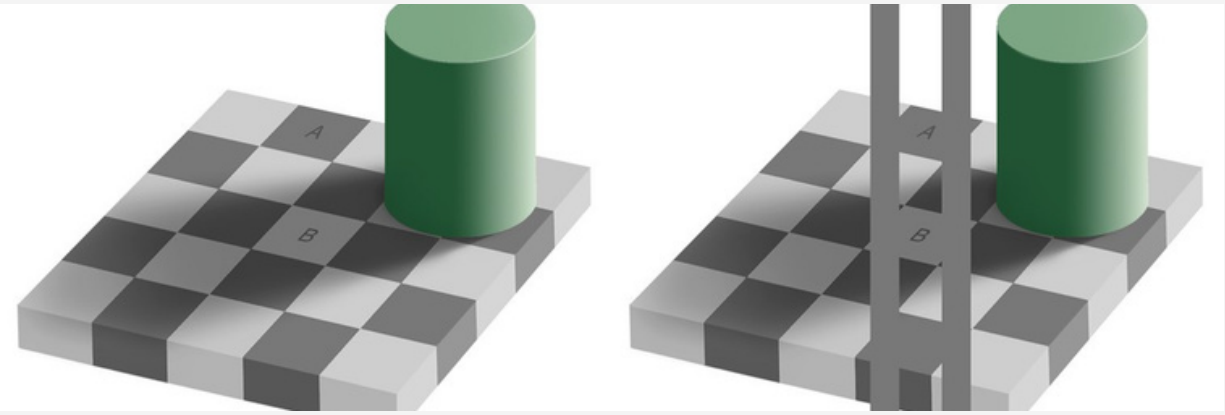
CASE-1 # The Dress

Back in 2015 #The Dress polarized the people on internet regarding its perceived color. You can also try and see the color of the picture of the dress. What do you see? Try this with other people around you and ask them what they see? Surprised with their response!!! Try this experiment with as many people as possible and you would be amazed with their answer. According to a recent review to explain this phenomenon nearly 23 scientific studies are done till date (J. González Martín-Moro et al 2018). Although consensus regarding underlying phenomenon is not reached but color constancy is certainly involved in the #the dress. Researchers have pointed out that the unique ambiguity related to

illumination allows two interpretations regarding perceived color of dress (Christoph witzel et al 2017).

[Answer: Mostly observer would report either White & Gold or Blue and Black color for the dress. In reality the dress is Blue & Black]

Case 2: Shades of grey



Similarly in above left picture you will notice that boX B appears to be lighter than box A. If two connecting lines are introduced between A and B then you would notice that they are the same shades of grey. The reason for perceived discrepancy in shade was because the B was surrounded by dark boxes and it was in shade of cylinder so the context surrounding the image changed the perception of reality. (Edward H. Adelson)

Case 3: Hidden object in brick wall

Try this yourself. Did you find any object in the brick wall? If you are exposed to this image first time then there are slim chances that you would find any object soon. Once you are explicitly told about what is there, then every time you see this picture again you would see the object. The explanation about this is that our vision takes bayesian approach, in simple terms our perception of the world is shaped by our prior experience. In reality the picture has object, but it is very unusual to find such an object in wall so our brain doesn't take into consideration which appears very obvious after seeing the answer.

[Answer: Cigar]

The above mentioned optical illusions give us glimpse about how human visual perception is different from reality. You would be surprised to know that we do not see any stimuli or event in real time.The simple reaction time for our visual system in response to flash of light is 200-250 msec while for sound and touch it is 150 msec(Romi Naajhawan 2008). Which means for visual system there is delay of 50 msec. Here the interesting question arises that if we have lag of 50msec then how we are able to daily life activity or high speed sports which requires swift response? The answer is we have lag compensatory mechanism in our motor system and visual prediction system (Romi NAajhawan 2008) which allows us to execute the task flawlessly. Hence even if we do not perceive the world exactly as it is we are so wonderfully designed that we manage to survive and excel in it.

LAG COMPENSATORY MECHANISM

Further reading

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RESEARCH GRANT AWARDEES

ASCO in order to support and to encourage reseach early in their career, provides research grants to undergraduate optometry students. This initiative of ASCO is to kindle research interest, motivate them and to conduct best possible research. A research grant of upto Rs. 50,000/- is awarded to the chosen projects. The grant is awarded to one or multiple projects based on the credibility, uniqueness and research methodology employed.

List of Research grant awardees for the year 2020-21:

Name of the student	Institution
Dickyi Kyizom	Sankara College of Optometry, Bangalore
Shubham Chauhan	Sitapur Eye Hospital, Sitapur

ASCO-INDIA MEMBERSHIP

Institutions offering four years B.Optom and/or two year Diploma program/or lateral entry programs are eligible to become an institutional member of ASCO-India. Complete the application form and ASCO-India will get back to you.

For membership forms, contact: op.manager@asco-india.org.

For more information on membership benefits, visit https://asco-india.org/institutional-membership/

BEST STUDENT OF THE YEAR

ASCO in order to support ASCO-India provides an award for the best student of the year among the students of the member institutes at the end of each academic year. This award comes following recognition of student who has excelled in several aspects in the year. This initiative of ASCO-India comes as a positive investment on future optometrists to perform better and urge to take up optometry to next level.

The following students are the recipients of the award for the year 2020-21:

- **Prasamsha Dhungana, Abhaya College of Optometry, Bengaluru**
- **N Deepan, Acchutha Institute Of Optometry, Erode**
- **Rojita Bajracharya Christian College of Optometry, Bengaluru**
- **Jeslin Jose Hari Jyot College of Optometry, Navsari**
- **Mehul Rathod, Lotus College of Optometry, Mumbai**
- **Rachita N, Nethradhama School of Optometry, Bengaluru**
- **Malathi, Netra Jyothi College of Optometry, Udupi**
- **Rudra Mani Kanta Kothapalli, Sankara College of Optometry, Bengaluru**
- **ROHITHA S.M, Sri Ramachandra Institute of Higher Education and Research, Chennai**
- **Malika Abbas, School of Health Sciences, Sushanth University, Gurugram**
- **Suvechha Das, Vidyasagar College of Optometry and Vision Science, Kolkata**

BEST FACULTY AWARDS

It gives us immense pleasure to announce Best Faculty Award introduced this year only and is conferred on the faculty members to identify, recognize exceptional teaching faculty who has made an outstanding contribution to Optometry, demonstrated excellence in teaching, shown outstanding contribution to learners and served the community through teaching even outside formal classrooms.

ASCO, India has started this award in 2021 to recognize the excellent faculties from across all Optometry colleges and Institutions in India and to highlight their contribution in community building and helping make a better society through inspirational teaching.

List of awardees:

Faculty	Institute
Vikram Singh	Yaima College of Optometry, Imphal
Valarmathi A	Sri Ramachandra Institute of Higher Education and Research
Kinnari Kalaria	Nagar School of Optometry, Ahmedabad
Diwakar Rao	Sankara College of Optometry, Bangalore
Nirav Mehta	Hari Jyot College of Optometry, Navsari
Siddharth Khandelwal	Drashti Nethralaya
Faiyaz Ahmed Khan	Dr. D. Y. Patil Institute of Optometry & Visual Sciences, Pune
Gowri	Acchutha Institute of Optometry, Erode
Shivani Suchal	Diwaliba College of Optometry, Bardoli

Congratulations! You all are true inspiration for the students!

Let us all continue to work together towards improving optometry education and to achieve much greater heights.

PROSTHETIC CONTACT LENS: PRACTITIONERS CAN MAKE A DIFFERENCE

Manthan Patel, M.Optom,
Nagar School of Optometry, Ahmedabad

A significant percentage of the population has suffered from severe untreated vision problems, such as severe eye damage caused by trauma, uneventful eye surgery or congenital anomalies. It is important that eye care professionals become familiar with cosmetic and therapeutic options.

These patients need help dealing with the psychological, cosmetic and visual problems that affect them on a day-to-day basis. Many patients are not aware of the choices available to them to enhance their deformity cosmetically or to help sighted eyes avoid visual problems. This can be one of the most rewarding and memorable role as an eye care provider...'changing patients lives'!

Prosthetic contact lenses help correct serious vision problems and eye disfigurement resulting from accidents or birth defects. These lenses are also being used to correct light sensitivity, double vision, albinism, and aniridia..

The objectives of this article is to demonstrate that iris painted contact lenses, when fitted and handled properly, can be a good cosmetic prosthesis for disfigured and blind eyes where no evisceration or enucleation is required.

PSYCHOLOGICAL CHALLENGES

The role of the primary Eye care provider is to inform patients about various contact lens options available that can minimize the psychological challenges that they encounter daily. In addition, using these lenses can eliminate a range of issues including diplopia, photophobia, poor depth perception, poor mobility, and orientation concerns.
It is important to inform patients about that you can never make their prosthetic lenses look like their real natural eye. However, with current technology and various prosthetic lens options—including scleral shells, soft prosthetic contact lenses, and surgical iris implants—practitioners can have very successful results.

PROSTHETIC OPTIONS

WHAT ARE PROSTHETIC CONTACT LENSES?

There are three options of prosthetic lens designs based on the patients' situation:

1. Soft contact lenses
2. Iris implants, and
3. Rigid scleral shells

WHAT ARE PROSTHETIC CONTACT LENSES?

A soft prosthetic lens consists of a contact lens material that will overlap an eye that is intact (not enucleated) to conceal a disfigurement and/or to provide therapeutic aid to sighted eyes for better quality of life.

Soft Contact Lenses

There are several different options when it comes to prosthetic soft contact lenses.

1) TRANSPARENT SOFT TINTED LENS DESIGNS: These are commonly used when patients have mild disfigurements, typically in those who have a darker iris. The transparent lens overlaps the natural iris tones to slightly enhance iris coloring, it generally represents a less expensive and more comfortable lens option that can be very satisfying for patients. These lenses are often used for photophobia, heterochromia, and color blindness

2) SOFT OPAQUE LENS DESIGNS: Designs for prosthetic lenses can include soft dot matrix, computer-generated, and custom hand-painted. They are necessary to mask deformities, reconstruct an abnormal iris or pupil opening, occlude pupils, and cosmetically align misdirected or strabismic eye posture. The possibility of matching a sighted, perhaps non-prosthetic eye to the needed prosthetic with the same coloring is an option. Typically, this option is less expensive and more reproducible while also having quicker availability.

3) SOFT OPAQUE CUSTOM HAND-PAINTED:There are hand-painted lens designs that offer a natural-looking contact lens. The lens can either be one-dimensional with the painting placed on the front surface of the lens, or three-dimensional, with the color embedded in the lens matrix. This lens design offers more customization including various lens diameters, base curves, pupil sizes, and iris colorings. These lenses are typically expensive, natural looking, and require more time to receive

RIGHT CANDIDATE FOR PROSTHETIC CONTACT LENSES?

There are many reasons that a patient might be challenged with a disfigured eye and could benefit tremendously from the suggestion of a prosthetic lens

INDICATION TO APPLICATION

- **Accident/Injury (trauma/chemical burns)**
- **Congenital defects**
- **Surgical complications (retinal, corneal, glaucoma)**

- Retinal detachments
- Infectious diseases (herpetic keratoconjunctivitis, trachoma)
- Poor nutrition
- Sjögren's syndrome
- Albinism
- Acute photophobia
- Aniridia
- Amblyopia
- Corneal Scarring
- Coloboma
- Congenital Defects
- Traumatic Iridoplegia
- Diplopia

Caution:

There are many situations in which an eye care professional should be cautious when recommending both a surgical intervention and a soft prosthetic lens, including

➢Chronic or active eye infections (e.g., acute or chronic uveitis);

➢Active or untreated glaucoma or retinal detachments; pregnancy

➢Active disease with blood vessel growth (rubeosis)

➢Diabetic retinopathy, and Stargardt's

However, when a patient has the globe of the eye intact, no infections, no corneal complications or sensitivity issues (excessive dryness), and has the ability to wear a contact lens and/or possibly be sighted, there are several lens choices to help enhance a patient's appearance and, in some cases, therapeutically enhance vision.

THERAPEUTIC BENIFITS:

❖Eliminating Diplopia/occluder lenses

❖Eliminating photophobia

❖Enhancing contrast vision

❖Colour vision benefits

12 STEPS TO SUCCESSFUL SOFT PROSTHETIC CONTACT LENS FITTING 2

#1) Discuss patients' goals: Realistic expectations should be discussed before proceeding with the placement of a prosthesis. Inform patients that a soft prosthesis will never look exactly like a real eye.

#2) Take a patient history: Take note of whether patients are in need of a prosthetic lens due to a congenital complication or a traumatic injury. The customized lenses require more time duration than the usual lens design. Also it would be helpful to be informed about whether any previous prosthetic lens had been used and whether there were any concerns with previous materials (e.g., previous sensitivity issues with contact lenses, dryness).

#3) Be aware of a patient's emotional state: A congenital eye defect or a sudden traumatic injury can cause extreme psychological damage to a patient. It is not uncommon for patients to cover their eyes with defiant sunglasses, hats, hairstyles, etc. Discuss the day-to-day problems with patient and emphasize that the goal to make a difference in their lives.

#4) Choose the material: There are many considerations prior to selecting the initial material. The most important is to confirm whether the globe of the eye is intact. A shrunken globe or a recessed eye cavity will be problematic in terms of proper alignment for a soft contact lens.

#5) Evaluate transparent versus opaque designs: If the decision is to use a soft lens material, the next step is to determine whether an opaque lens is needed to mask a severely disfigured eye, occlude a pupil (diplopia), reconstruct a pupil opening, or realign a misdirected eye (strabismus). Another option would be to use a transparent tinted lens for a mild scar or photophobia.

Transparent lenses are less expensive, readily available, and reproducible; however, more severe defects will require an opaque lens design ranging from a standard to a custom lens design. For more exacting detail, iris flecks, limbal rings, and coronas can be hand-painted on a custom lens design.

#6) Know your resources: There are various prosthetic lens companies might recommend that patients come to their specific location to provide the best outcome, with exacting measurements including an extensive range of trial lenses and photography equipment for maximum color match, etc.

#7) Take measurements: To evaluate comprehensive eye exam for selection of prosthetic contact lenses. During this exam your optometrist or ophthalmologist will thoroughly examine your eyes to rule out conditions

Measuring all baseline data for selection of soft prosthetic lens include:

- **Base Curve**
- **Iris Diameter**
- **Iris Coloring**
- **Pupil Diameter**
- **Lens diameter**

#8) Determine cost: The material fees will vary depending on the lens design that is needed. There is a range in fees, depending on a standard stock lens versus a customized hand-painted lens design.

#9) Discuss delivery time: Recognize a patient's situation and carefully discuss the delivery time and expectations of the final lens, customized hand-painted prosthetic lens design will take more time compared to a transparent or standard opaque lens option

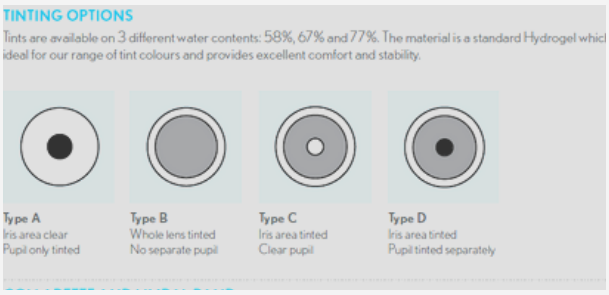
#10) Dispense the lens: Specific insertion and removal instructions should be demonstrating and trained for it when dispensing a lens. Instruct patients to strictly to this is a medical device that requires special care and handling Hydrogen peroxide solutions may be contraindicated with certain

hand-painted opaque lens designs because they will cause color to fade

#11) Recommend safety glasses: Emphasizing safety—by recommending protective glasses—is paramount to these patients, because they can lose their only sighted eye from an unexpected traumatic injury in a split second. Many prosthetic patients are non-sighted or present with decreased visual acuity in one or both eyes depending on the situation.

#12) Perform annual eye examinations: Prosthetic contact lenses become a part of patients' daily routine. And often, it completes their overall appearance to make them feel whole again; in turn, these lenses help them feel great about themselves and interacting with the public without any apprehension.

PROSTHETIC CONTACT LENS AVAILABILITY



TAKE AWAY MESSAGE

As an optometrist, primary goal should be to provide the best possible outcomes for individuals who come to seek information and solutions.

New technological product advancements can often mean increasing the level of services available; such as the improvement in production of soft prosthetic contact lenses. By allowing more alternatives in cosmetic color applications, new levels of opportunity have opened up for you and your patients.

References

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2.https://www.clspectrum.com/issues/2019/december-2019/prosthetic-eye-options

3. Image courtesy: https://www.clspectrum.com/issues/2019/december-2019/prosthetic-eye-options

FLOATERS? – GET RID OF IT (NON SURGICAL MANAGEMENT)

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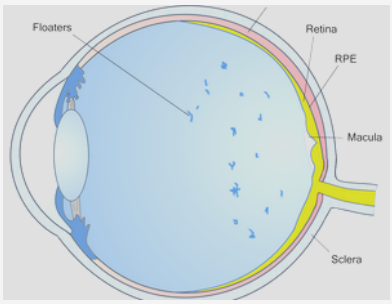
What it is?

Eye floaters are small dark shapes that float across your vision. They can look like spots, threads, squiggly lines, or even little cobwebs (Figure.1). It seems to float away when the person tries to look directly at them. Floaters are usually harmless but it can be extremely disturbing in some situation like Posterior vitreous detachment (PVD), Retinal detachment (RD) etc.



Eye floaters- General view

Eye floaters are a natural phenomenon due to the metabolic changes in vitreous body of the eye. Floaters are actually a shadows or the disturbance of vision because of different level of changes in the densities of vitreous humour(VH).

Causes

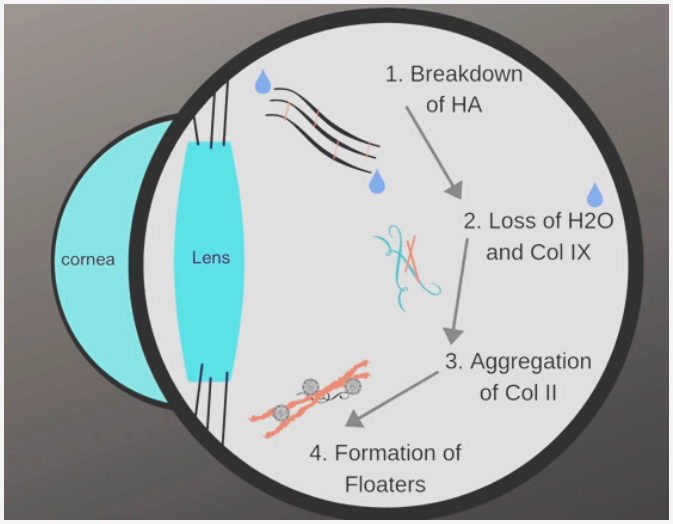
·Age related changes taken place in the vitreous
·Retinal detachment
·Posterior uveitis
·Pathological myopia
·Ocular trauma & surgery

> METABOLIC CHANGES IN VITREOUS

Mechanism of floater

As we know that vitreous humor is a clear gel-like substance that occupies the space behind the lens and in front of the retina at the back of the eye and is composed of 98-99% of water, Collagen fibrils (type-II, V, XI, IX and vitrosin- a fibre protein seen in VH), and hyaluronic acid. Normally the combination of all chemical composition in a proper amount will maintain the vitreous in form of gel but as the age increases uniform arrangement of hyaluronic acids combined with water and collagen fibrils will break down and leads to loss of

water and collagen type IX and so there will be accumulation of type II collagen fibrils which will be appear as a shadow of it called floater.



Eye floater mechanism

Management

The common management for floaters what we heard from an eye care practitioner is to "Just ignore it" if it is not distracting to the vision and daily routine activities. This is in case of the degenerative changes in the vitreous but the condition like PVD and RD, a surgical management will be the choice of treatment.

Here few NON-SURGICAL measures are mentioned. Let's have a look of it!

1. Have you ever think that a slice of pineapple can reduce the amount and intensity of floaters?

Yes, it's true.! Pineapple is a good source of fruit which contains a number of essential nutrients, vitamins, minerals, phytonutrients, antioxidants which would supply hydrolytic enzymes to interact with the vitreous contents and treat patients with vitreous opacities. Pineapple contains a number of protease, a particular BROMELAIN (nonproteolytic component) which is mainly responsible for complete debridement and dissolving the overgrowth connective tissues, including several proteins and mucopolysaccharide substrates from the human body including floaters. There by it will dissolve and remove vitreous floaters.

> PINEAPPLE CONTAINS PROTEASE FOR DEBRIDEMENT

2. Atropine eyedrops (0.01%)

As we know that floaters are a shadows or the disturbance of vision by different level of changes in the densities of vitreous humour(VH). Although atropine may not be a true way to eliminate the eye floaters, it still may an option for those who are very symptomatic. Normally atropine(1%) eye drops are used as a diagnostic as well as therapeutic medication for eye detailed examination and several ocular diseases. The mechanism is that if we use a low dose of atropine(0.01%), it allows the eye to dilate just a bit, enough (increasing diameter by 1.4 mm on average) which allows more light into eyes and dispersing the shadows that the eye floaters are creating. On the other side one should also observe and monitor the side effects of even low dose of atropine(0.01%)

> MORE LIGHT INTO EYES DISPERSE THE SHADOWS CAUSED BY FLOATERS

Further reading

- **http://www.jofamericanscience.org/journals/amsci/jas150419/03_34649jas150419_17_30.pdf**
- **https://www.escrs.org/Lisbon2017/programme/free-papers-details.asp?id=28365&day=0, https://www.thefloaterdoctor.com/atropine**

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