Objective

The Eye on Vision Foundation is looking for a safe treatment for vitreous floaters, without the risk of cataract formation or other visual risks and side effects.

Proposed Study


Current Problem - Enzymes that dissolve vitreous protein may also dissolve the protein of the zonules supporting the crystalline lens (leading to cataracts).

Proposed Solution - If the lab could distinguish the type of collagen in the vitreous from the type of collagen supporting the crystalline lens and develop a specific agent to dissolve the vitreous collagen, while leaving the protective coating on the lens, we believe this could potentially protect the lens and eliminate floaters at the same time.
What Are Floaters?

Have you even seen something move past your eye and disrupt your vision? More than likely it was a floater. Floaters are the debris that float around in your vitreous and can be seen in your field of vision.

The vitreous humour is a gel-like substance that consumes about 80 percent of the eye between the lens and the retina, and helps it maintain its shape. The vitreous is mostly made up of water, in addition to hyaluronic acid and collagen fibers. As the body, and therefore the eye ages, the vitreous slowly shrinks. As this process occurs the gel can become stringy and separated and these breakaway pieces will cast shadows on the retina and actually causes us to see spots. The spots are referred to as vitreous floaters in the medical community.

Floaters come in all shapes and sizes. It all depends on how the gel breaks down, as well as the position of the floater in the individual eye. Some floaters can look large, grey, and almost like a cobweb, while others may be small, dark, and dense. Many people’s floaters are thread-like strands, or squiggly lines which can appear to be transparent. Depending on how liquid the vitreous has become your floaters may move out of your line of sight if you move your eye or it may remain relatively in the same position with little movement at all. Floaters, no matter what the size or shape, are usually noticed the most when looking at something bright, such as white paper or a blue sky.
Severe cases of floaters are often referred to as Degenerative Vitreous Syndrome (DVS). This refers to severe cloudiness in the aging vitreous humour, which interferes with the activities of daily living.

**Typical Eye Doctor Response**

Doctors have gotten into the habit of telling patients that floaters will go away or dissolve. Unfortunately, there is no scientific evidence to back this up. More likely what happens, is the brain begins to filter the floaters out. The brain sees it as unnecessary information and actually stops seeing the floater. Not all people’s brains will filter them out, so this is not something that can be controlled by the patient or by the doctor.

When patients inquire about YAG laser treatment or floaters only vitrectomy, most doctors tell the patients that they are crazy to even consider those options and once again, they must learn to live with the ?dirty fish bowl vision.?
Who Will Develop Vitreous Floaters?

Almost everyone will develop floaters as they age. Those who are nearsighted have diabetes, have had an eye injury, or who have had a cataract operation will have a higher chance of getting age-related floaters at an earlier age. There are also other less common causes of floaters such as infection, uveitis, hemorrhaging, vitreous detachment, retinal detachment, and retinal tears. In more recent years, there is some talk in the medical community that LASIK can cause floaters, due to the increase in pressure during the creation of the flap.

What Are The Current Treatment Options Available?

Most eye doctors will tell you there is no treatment, and you must learn to live with them. This is true for the most part, but there are two other treatment options, which are not widely used due to risk factors and questionable results.

In severe cases a floaters only vitrectomy, or FOV, a surgical procedure that removes floaters from the vitreous, can be used. This operation carries significant risks to sight because of possible complications, which include retinal detachment, retinal tears, and accelerated cataract.
Another treatment is the use of YAG lasers, but this is considered ineffective by the majority of doctors, and actually may cause more floaters in the long run. There have also been patient accounts of accelerated cataracts with this option. There are currently only 3 doctors within the U.S. even willing to attempt treating floaters with laser vitreolysis.

Are Vitreous Floaters Avoidable?

There has been very little research into floaters. Currently, there are no recommended steps to take to avoid floaters. Hopefully, with more research science may find steps to help prevent floaters in the future.

A Personal Account

Have you ever seen a dirty fish bowl that hasn't been cleaned in weeks? The water is murky with debris floating up and down, almost suspended in motion. This is what the world looks like through my eyes.
I look left, right, up and down to find a clear spot to see through, but it is an impossible task. Walking outside without sunglasses simply can't be done. The shadows become black and dense and with the more light that enters my eye, it becomes nearly impossible to see. A day at the beach is no longer relaxing and carefree, it is a daunting task. The light sky background and the sun reflecting off the sand bring all of the floaters front and center. Curling up on a rainy Sunday afternoon and reading a good book is no longer enjoyable, as there are more black dots and lines than words on the pages.

Floaters are more than a passing cold, an allergy attack, or a broken arm; they are a chronic and never leaving condition. There are no pills, eye drops or medicine that can be used to lessen the appearance or eliminate floaters. They are unavoidable and untreated. Something needs to be done to improve the quality of life for floater sufferers around the globe.

What Type Of Research Is Taking Place?

There is currently no research, anywhere in the world, to find a safe treatment for vitreous floaters. While there have been some advances made with vitrectomy over the last decade,
this is not a surgery designed to eliminate floaters, and if performed will almost guarantee cataracts within 2 years. This is not an option that most young people with floater want to take.

What Is The Eye On Vision Foundation?

The Eye On Vision Foundation is a 501c(3) non-profit charity. We strive to spearhead groundbreaking research, raise funds and awareness for vitreous floaters, visual snow, and macular degeneration.

PRESIDENT

Jennifer Ambrose
What Does The Eye On Vision Foundation Hope For?

The Eye on Vision Foundation is looking for a safe treatment for vitreous floaters, without the risk of cataract formation or other visual risks. Currently, the only two options, vitrectomy and YAG laser. Both are used in an off-label way for floaters, and carry significant risks. An eye drop would be ideal to eliminate floaters, and honestly, most people are shocked to learn by their eye doctors that such a drop does not already exist. Another option to be explored would be an injection into the eye. This option would not be as widely received by patients, but those truly looking for a treatment would be willing if proven to be safe.
What Is The Main Hurdle To Overcome With An Enzymatic Treatment?

The main problem with an enzymatic cure: Enzymes that dissolve vitreous protein may also dissolve the protein of the zonules supporting the crystalline lens (leading to cataracts). If the lab could distinguish the type of collagen in the vitreous from the type of collagen supporting the crystalline lens and develop a specific agent to dissolve the vitreous collagen, we believe this could potentially protect the lens and eliminate floaters at the same time.

How many people could possibly be affected if a treatment was found?

There are roughly 7 billion people in the world. Almost all people will develop floaters by the age of 50. There would easily be hundreds of millions of people who would benefit from a safe treatment for floaters. One of the largest subset of patients would come from post-cataract surgery patients, as floaters are almost always inevitable with the procedure, but there are so many more people that would benefit as well. The younger population seems to be the most bothered by the presence of floaters, as they are commonly found closer to the retina and more noticeable to the patient.
Resources and Articles of Interest


Utility values associated with vitreous floaters?


Long term follow-up of pars plana vitrectomy for vitreous floaters: complications, outcomes and patient satisfaction

Enzymatic Breakdown of Type II Collagen in the Human Vitreous

http://www iovs.org/content/50/10/4552.full

MOLECULAR BIOLOGY OF PHARMACOLOGIC VITREOLYSIS

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447585

Ophthalmic use of collagenase

http://www.freepatentsonline.com/4174389.html

Vitreous Floaters: When a Minor Nuisance Becomes a Serious Issue