

# RETINA RESEARCH FOUNDATION NEWSLETTER

Foresight for Sight

November 2015

Issue Number 3 / Volume 37

*Retina Research Foundation Newsletter is published three times per year: Spring, Summer and Fall.*

## Thanksgiving Greetings and Best Wishes

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and  
Advisory Trustees  
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Baylor College of Medicine  
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*Apoptosis in Retinal Vascular Development and Disease*



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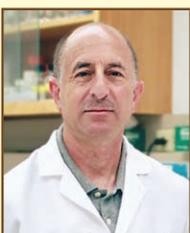
**Akihiro Ikeda, DVM, PhD**  
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**Aparna Lakkaraju, PhD**  
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*Insight into the Cellular Basis of Retinal Degenerative Diseases*



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*Studies of the Resveratrol-stimulated Calcium Response in Endothelial Cells*

**November 2015**

Dear Friends,

As the year 2015 begins to wind down, we would like to acknowledge the important role that you – our friends and supporters – play in the success of our ongoing programs of research and education. With many worthwhile demands on your time and resources, we sincerely appreciate your interest in Retina Research Foundation's mission.

A world without blindness is our ultimate goal. This dream will only become a reality in small steps, as each new insight gained in the laboratory becomes the foundation for the next discovery. Building the body of knowledge in vision research is not a straight-line progression, and discoveries are often made by scientists coming from non-vision fields and from diverse backgrounds – working alone or in collaborative teams.

These advancements lead ultimately to improved patient outcomes and are only possible with your continuing support. If you have not yet given to RRF, we ask that you consider doing so now. We are grateful for your ongoing interest in working with us to achieve our goal of eradicating blindness.

This will be our last Newsletter of 2015, so let us take this opportunity to wish you a very happy Thanksgiving, healthy and joyful holidays, and all the best in the New Year and for many years to come.

With best regards,



**Frank K. Eggleston, DDS**  
*Chairman of the Board*



**L. Henry Gissel, Jr.**  
*Fund Drive Chair*



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*Retina Research Foundation is dedicated to the eradication of retina disease through programs in research and education.*

# My Eyes?

*Answers to some of the most frequent questions doctors receive from their patients*



**Petros E. Carvounis, MD**

Petros E. Carvounis, MD, RRF Board member, addresses in this issue several topics related to retina disease and surgery. Below he has chosen several common questions, with his explanation of what he does with his patients and why. In the next issue of the newsletter, Dr. Carvounis will answer some common questions about prevention and treatment of age-related macular degeneration.

## *1. Following surgery for repair of a macular hole, does the patient have to stay face-down for one to two weeks?*

When macular hole surgery was first introduced, patients were asked to position face down following surgery for macular hole for one-two weeks, with success rates of 85-95%. Recently, the requirement for face-down positioning has been questioned. Indeed, I achieve 97% macular hole closure rate without face down positioning. Further, there are several publications from other retina surgeons that demonstrate excellent macular hole closure rates without face down positioning. I therefore do not recommend face-down positioning after macular hole surgery (although patients must still avoid being face up for the first three days after surgery).

## *2. Does repair of retinal detachment require a gas bubble?*

If a pars plana vitrectomy is used to repair a retinal detachment, either a gas or silicone oil bubble has to be used. In patients who have had cataract surgery, repairing the retinal detachment with pars plana vitrectomy with a gas bubble is very effective, has little discomfort, and has the advantage of not making patients near-sighted. A scleral buckle can also be used to treat a retinal detachment. The advantage of a scleral buckle is that it can be done without using a gas bubble, no positioning is required, and patients are free to travel by plane and go to high altitudes. Compared to a pars plana vitrectomy, it is more uncomfortable and will make the eyes operated somewhat more near-sighted. Clinical research suggests that for eyes that have had cataract surgery the success rate is higher after repairing a retinal detachment with pars plana vitrectomy (and using the gas bubble). Clinical research also shows that eyes that have not had



**Retinal detachment**

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cataract surgery have better outcomes using scleral buckling. There is no evidence to show that the routine combination of scleral buckling with pars plana vitrectomy is advantageous.

It should be noted that there are special cases where scleral buckling is not an option, for example, when the retinal detachment is caused by a giant retinal tear. Conversely, when a retinal detachment is caused by an atrophic break or dialysis, pars plana vitrectomy should be avoided.

### *3. Do retinal holes always need LASER surgery?*

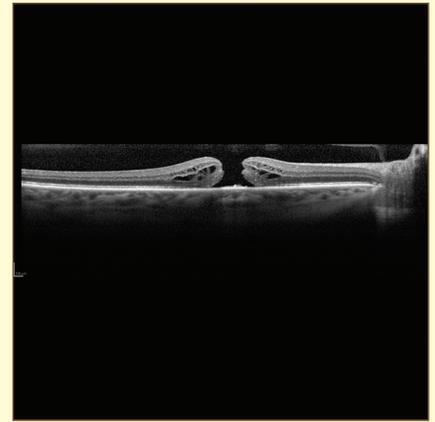
Retinal holes can lead to retinal detachment, but only in the first three decades of life. A retinal hole discovered during an examination when the patient is 50 years old had probably been there for several years. Retinal holes in a young individual do not have to be treated. Retinal holes in high myopes (highly near-sighted individuals) or when associated with fluid under the retina are the ones that are at highest risk for resulting in a retinal detachment and for which treatment should be considered. After treatment the risk for retinal detachment is less than one percent.

Retinal holes, however are not the same thing as retinal tears. Retinal tears, especially when accompanied by symptoms such as new floaters and/or flashes of light, need prompt LASER surgery.

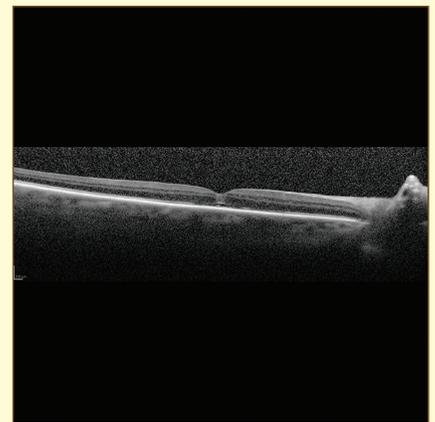
Macular holes are a different entity altogether: these should be treated promptly with surgery (but no LASER surgery) to restore vision, unless they have been present for several years at which point even closing the hole will not improve vision.

### *4. Does flying increase the risk of a retinal tear or detachment?*

It is very clear that flying itself does not increase the risk of a retinal tear or retinal detachment. Indeed, commercial pilots or even Air Force pilots (who really expose their eyes to the most abrupt changes in altitude) do not get retinal detachments more frequently than people who have never flown. The only note of caution is that passengers will sometimes get dehydrated over long flights: partly the air is dry (increased losses by evaporation), there is not ready access to water, and people commonly will have a few drinks on the flight (alcohol is a strong diuretic). Dehydration of the vitreous gel can precipitate separation of the vitreous gel from the



*Macular hole pre-op*



*Macular hole post-op*



*Flight is safe for the eyes*

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# Study Finds Link Between Retinal Swelling in Premature Infants And Poorer Neurodevelopment



*Cynthia Toth, MD*

A team of Duke Medicine doctors has identified a correlation between swelling in the back of the eyes of premature infants and poorer neurodevelopment as the babies grow. The Duke team pioneered use of a hand-held non-invasive imaging device in infants, and used this device to determine that close to half of the premature babies screened had swelling in the macula region of the retina.

Senior author Cynthia Toth, MD, explained, “For the first time, we can identify microscopic swelling of the retina through a simple examination at the bedside. Because the retina is actually an extension of brain tissue, we wondered if this swelling might reflect events in ongoing brain development.”

A two-year follow-up study of the infants with retinal swelling shortly after birth showed significantly lower language and motor scores on a standard developmental test. Severity of retinal swelling correlated with poorer motor development. These findings were published in the March, 2015, issue of the journal *Ophthalmology*.

This screening tool could be used to flag potential neurodevelopmental issues in these infants, with opportunities for early intervention. The hand-held tool (spectral-domain optical coherence tomography) does not touch the infant’s eyes, and the infrared light it uses does not cause discomfort.

The ophthalmologist is able to clearly see the cell layers at the back of the eye.

“No one knows the cause of this swelling in infants,” said first author Adam L. Rothman. “Now that we have this pilot data, it suggests that a mechanism related to poorer neurologic health may cause the retinal finding. The hope is that in the future we will be able to go into a nursery, image these babies’ eyes, and identify red flags for poor neurologic health and development. Clearly, further studies are needed to verify these findings and develop methods to use these data to improve infant care.”

<http://www.newswise.com>



*Development testing*

*In 2013 Dr. Toth received the Retina Research Foundation Award of Merit in Retina Research. This award, presented by the Retina Society, was established in 1978 by RRF to recognize outstanding vision scientists whose work contributes to knowledge about the retina and retinal diseases.*

# Meet the Staff

## Margaret Farese

Margaret Smith Farese is an almost life-long Houstonian, arriving here for the first time at age five. She graduated from Boston University with a BA in biology, and then returned to Houston to get married and take her first job as a bookkeeper and secretary. In addition to administrative positions, Margaret has worked at several retail stores, including 12 years at her mother's office supply store and print shop. She has volunteered with the Junior League of Houston, Cypress Fairbanks ISD, St. Martin's Church, and Kleb Woods Nature Park to name a few.

Margaret has been with Retina Research Foundation for five years. As administrator and sole employee, she handles a wide variety of responsibilities, including the newsletter, annual report, website, Board meetings, bookkeeping, grants and awards, fund drive, RRF events such as the Luncheon, and whatever else is necessary for the smooth and efficient running of the Foundation. Vision research and education are always the focal point of all RRF operations.

Outside of work, Margaret's interests include birding, exploring parks of all types, reading history books and biographies, and spending time with friends and family. Margaret and husband Frank have a daughter, a son, and two grandchildren.



*Margaret Smith Farese*



*Margaret and Frank*

## My Eyes?

*(continued from page 5)*

retina that can result in retinal tears and detachment. Indeed, it is not uncommon for patients to develop a posterior vitreous separation (which is when retinal tears occur) following a GI upset or severe fever. Provided then that one takes care to keep oneself well-hydrated on the plane, one is not putting themselves at risk for developing a retinal tear or detachment by flying.

*Petros E. Carvounis, MD, is an ophthalmologist specializing in macular degeneration, vitreoretinal diseases and surgery; Director, Vitreoretinal Fellowship Program; and Associate Professor of Ophthalmology, Cullen Eye Institute, Baylor College of Medicine.*

*"The measure of greatness in a scientific idea is the extent to which it stimulates thought and opens up new lines of research."*

**Paul A.M. Dirac**  
*theoretical physicist*  
(1902 – 1984)

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**Managing Editor:** Margaret Farese

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Additional memorials received will appear in the next issue.