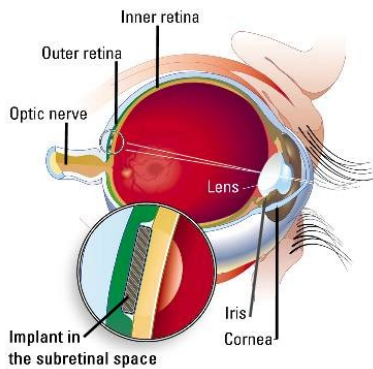


Research Project of the Quarter

Neuroprotective Effect of Electrical Stimulation on the Retina

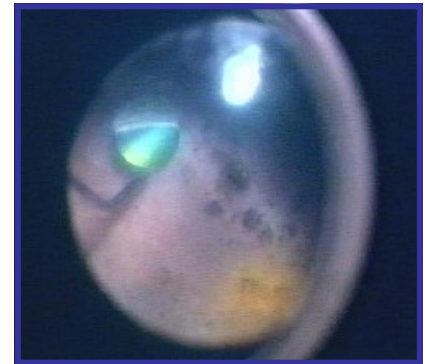
The development of retinal prosthetics to treat photoreceptor degeneration, such as retinitis pigmentosa (RP), has been underway for the last 20 years. RP is one of the leading causes of total blindness affecting 100,000 Americans, including veterans. The subretinal artificial retina, developed by Optobionics Corp., consists of a small silicon chip covered by an array of microphotodiodes that produce electrical current in response to light.



This schematic shows the location of the implant in the eye.

Based on biocompatibility data in animal models collected by Dr. Pardue's laboratory, the FDA approved Phase I and II human clinical trials with the subretinal implant. The Phase I trials, which included veterans, revealed increased functional vision in people with RP. It is hypothesized that electrical stimulation from the implant may produce an upregulation of growth factors in the eye, enhancing visual function. Dr. Pardue's laboratory is examining the neuroprotective effect of subretinal electrical stimulation in animal models of RP (VA merit grant, C3039R, Neuroprotective effects of subretinal electrical stimulation). These studies indicate that implantation of a subretinal device is neuroprotective to the retina. Further studies are underway to determine if electrical stimulation or presence of the implant as a foreign body are the cause of the protective effect.

These studies should provide important information regarding the mechanism(s) underlying visual improvements after implantation with retinal prosthetics and improve future retinal prosthetic devices as treatments for RP.



Implant being surgically placed within the subretinal space of the human eye.

For more information about this project, contact Dr. Pardue at 404-321-6111, ext. 17342.

About the Researcher...

Dr. Pardue is a Research Biologist at the Atlanta VA Medical Center's Rehabilitation R&D Center and an assistant professor in the Department of Ophthalmology at Emory's School of Medicine. Dr. Pardue's interests focus on using animal models to understand and find treatments for retinal disease. Her training is well-focused for this task with a B.S. in Zoology from the University of Wyoming and a PhD in Vision Science/Biology from the University of Waterloo. Dr. Pardue's current research projects include examining neuroprotective effects of subretinal electrical stimulation (VA RRD C3039R), testing bile acids as an anti-apoptotic treatment for retinal degenerations (VA BLRD Merit Grant), and developing mouse models of myopia (University Research Committee Grant).



Machele Pardue, Ph.D.

Research Volunteer Opportunities

Are you 65 years old or older?
Do you wish prescription information was easier
to read and understand?
We need your help with a study to make health materials easier to
read and understand.

This study is being done at the Rehabilitation Research and Development
Center at the Atlanta Veterans Affairs Hospital.

You can help if you are 65 years old or older and want to help improve
the prescription information that you read. We will look at your vision,
hearing, thinking, and ask you some questions about yourself.

We can provide transportation if you need it. If you qualify, the study is a
one-time visit. The visit could take up to 3 to 4 hours including breaks.

We will pay you for your time
(\$30 per visit).

If you are interested in finding out more, call:
Lauren Rooney
404-321-6111 extension 17515

Is your vision 20/200 or worse, have you been diagnosed as legally
blind, or do you have a hearing loss that keeps you from hearing well?

Are you 60 years or older?

We are studying how well people with impaired vision and/or impaired
hearing are able to manage in their daily lives. This study requires 2 visits to
the Atlanta VA Medical Center.

You will be paid \$10/hour for your participation.

For information contact:
Adrienne Lloyd at 404-321-6111, ext 16822
Rehab Research & Development Center, Atlanta VAMC

Visual Rehabilitation Study Volunteers Wanted

Funded by the National Institute of Health for those with loss of their visual field:
hemianopia (problems with your vision or blindness with half of your sight).

- Pencil & paper test on drawings and words (2 tests)
- Non-invasive Functional Magnetic Resonance Imaging (fMRI) study
on visual tasks 1 hour.
- Visual functional training 15-20 sessions.
- Monetary Compensation: \$220

*Transportation is available in some cases, please inquire.

For information contact:
Dr. Yonghua Tai @ 404-321-6111, ext 15396
Rehab R&D Center, Atlanta VAMC
Blindsight@doctor.com

Have you been diagnosed with Retinitis Pigmentosa (RP)?

Are you legally blind?

The Atlanta VA Medical Center Rehab R&D Center and Emory University
are looking for volunteers to participate in a study of visual function and
everyday function in people with Retinitis Pigmentosa.

- We are using several measures to study your vision & balance
- This study could take up to 2 years, 4 times/year
- You will be paid \$10/hour for your participation

For information contact:
Adrienne Lloyd at 404-321-6111, ext. 16822
Rehab Research & Development Center, Atlanta VAMC

Rehabilitation Research & Development Center

Atlanta VA Medical Center (151R)

1670 Clairmont Road

Decatur, GA 30033

www.varrd.emory.edu

Important Dates During ...

- **April**
National Public Health Week (8-13)
World Health Day (7)
- **May**
National Senior Health & Fitness Day (28)
National Sight-Saving Month
Older Americans Month
- **June**
National Safety Month
Vision Research Month
Eye Safety Awareness Week (25-30)

Good friends are good for your health.

Irwin Sarason

