

Optometry DistList

Instance 2016: 24

Saturday, 19 March 2016

Today's subjects

- The first human trials of new technique that could restore sight to the blind are about to begin
- Accommodation deficit in children with Down syndrome: practical considerations for the optometrist
- A Smart Contact Lens for Glaucoma Patients
- Stunning operation regenerates eye's lens
- Bio-engineered pig corneas helping to restore vision in China
- Optometrists on contract basis
- Application Specialist – Refractive (Job Opening)

Date: Wednesday, 24 February 2016

From: Sandhya Shekar (sandhya.shekar@indiavisioninstitute.org)

Subject: **The first human trials of new technique that could restore sight to the blind are about to begin.**

In a medical first, doctors in Texas are planning to use a ground breaking neuroscience technique to attempt to restore the sight of blind people, [MIT Technology Review reports](#).

The Ann Arbor, Michigan-based startup RetroSense Therapeutics aims to use a technique known as optogenetics, which involves modifying neurons so they can be turned 'on' or 'off' using light. The technique has been demonstrated [in mice](#) and [monkeys](#), but this would be the first time it's been used in humans.

According to Tech Review, the trial is being carried out by the [Retina Foundation of the Southwest](#), and will involve 15 patients with [retinitis pigmentosa](#)

Treating blindness with light

Previously, scientists have used optogenetics to erase fearful memories in the brains of mice.

Optogenetics involves infecting brain cells with a virus that has been programmed to carry a gene for a light-sensitive protein found in algae, called channelrhodopsin. Once the cells are infected, they can be turned 'on' or 'off' in response to light of a certain colour, or wavelength.

Typically, scientists must implant fibre-optic wires into an animal's brain in order to access these light-sensitive neurons. But the eye is an ideal target for the first optogenetic therapies, because it is already exposed to light and doesn't require any wires or brain surgery.

The plan is to inject a virus containing the light-sensitive gene into neurons in the eye called ganglion cells, which transmit signals from the retina to the brain. Since the patients' retinas are damaged, the hope is that you can bypass these cells and make the ganglion cells directly responsive to light.

The beginning of new brain treatments

However, since the channelrhodopsin protein can only respond to light of a single colour (in this case, blue light), scientists believe the patients will only see the world in monochrome. It's not clear how they will perceive colour, or whether they will be able to see some colours at all (without them appearing black).

For full article, please visit:

<http://www.sciencealert.com/doctors-plan-to-use-a-groundbreaking-technique-in-humans-for-the-first-time-to-treat-blindness>

Date: Wednesday, 2 March 2016

From: Deepika Kommanapalli (deepikak.opt@gmail.com)

Subject: **Accommodation deficit in children with Down syndrome: practical considerations for the optometrist**

Abstract: Down syndrome is the most common cause of intellectual impairment, and life expectancy in this group has increased in recent decades, meaning that health care is increasingly focused on quality of life and the management of treatable illnesses. There are frequent problems associated with vision in Down syndrome, including refractive errors, strabismus, reduced vision, and reduced accommodative ability. This review will discuss the importance of accommodative ability; describe the prevalence and nature of accommodative deficits in Down syndrome, which are found in approximately 55%–76% of individuals; discuss the management of this deficit with the prescription of bifocal correction; and summarize the possible etiologies of hypoaccommodation in Down syndrome. Finally, the review will consider practical considerations for the optometrist managing accommodative deficits in patients with Down syndrome.

For full article, please visit: <https://www.dovepress.com/accommodation-deficit-in-children-with-down-syndrome-practical-considerations-peer-reviewed-fulltext-article-PTO>

Date: Saturday, 5 March 2016

From: Arpita (arpitanikita3@gmail.com)

Subject: **A Smart Contact Lens for Glaucoma Patients**

When a patient gets glaucoma, it can be difficult to know whether the disease will progress slowly or advance quickly, taking vision with it. A smart contact lens could help solve this problem.

A new study appearing in the journal *Ophthalmology* this April shows that electronic signals from a smart contact lens can be used to predict which glaucoma patients may have a faster advancing version of the disease.

“This could be very useful if you want to know whether a new medication is working for a patient,” said study author C. Gustavo De Moraes, M.D., MPH, an associate professor of ophthalmology at Columbia University Medical Center. “You can see how their eye is reacting to the therapy in a much more meaningful way.”

How it works

A sensor in the lens detects when the curvature changes. As eye pressure fluctuates throughout the day and night, the curve of the lens changes, generating an electrical signal sent to a wireless device that records the signals. Similar to how an electrocardiogram shows a heartbeat, the profile of signals from the smart lens indirectly shows eye pressure changes over time.

Researchers at Columbia tested the Sensimed Triggerfish® lenses on 40 patients between ages 40 and 89 undergoing treatment for open-angle glaucoma, the most common form of the disease. Over two years, scientists performed at least eight standard visual field tests on these patients. Half were classified as having slow disease progression while the other 20 had fast disease progression.

Then patients wore the smart contact lens for 24 hours, including overnight as they slept. Investigators found that patients with steeper spikes recorded overnight and a greater number of peaks in their signal profile overall tended to have faster glaucoma progression.

Using this tool, ophthalmologists may one day be able to more accurately gauge whether a patient’s glaucoma will progress quickly by looking at a readout from the smart lens.

For full article, please visit: <http://www.aao.org/eye-health/news/smart-contact-lens-glaucoma-patients>

Original article source: [http://www.aaojournal.org/article/S0161-6420\(15\)01408-6/fulltext](http://www.aaojournal.org/article/S0161-6420(15)01408-6/fulltext)

Date: Monday, 14 March 2016

From: Shiva ram (shivaram.ram180@gmail.com)

Subject: **Stunning operation regenerates eye's lens**

A pioneering procedure to regenerate the eye has successfully treated children with cataracts in China.

More than half of all cases of blindness are caused by cataracts - the clouding of the eye's lens.

An implanted lens is normally needed to restore sight, but the operation described **in Nature** activated stem cells in the eye to grow a new one. Experts describe the breakthrough as one of the finest achievements in regenerative medicine.

The technique developed by scientists at the Sun Yat-sen University and the University of California, San Diego removes the cloudy cataract from inside the lens via a tiny incision.

Crucially it leaves the outer surface - called the lens capsule - intact. This structure is lined with lens epithelial stem cells, which normally repair damage. The scientists hoped that preserving them would regenerate the lens.

The team reported that tests on rabbits and monkeys were successful, so the approach was trialled in 12 children. Within eight months the regenerated lens was back to the same size as normal.

It also showed a dramatically lower complication rate "by almost every measure, supporting the superiority of the treatment". However, he says larger trials are needed before it should become the standard treatment for patients.

The procedure was tried in children because their lens epithelial stem cells are more youthful and more able to regenerate than in older patients. Yet the overwhelming majority of cataracts are in the elderly.

Commenting on the findings, Prof Robin Ali from the UCL Institute of Ophthalmology, said the work was "stunning". He told the BBC News website: "This new approach offers greatly improved prospects for the treatment of paediatric cataracts as it results in regeneration of a normal lens that grows naturally." He said getting similar results in adults "is likely to be more difficult to achieve" but could "have a major impact".

For full article, please visit: http://www.bbc.com/news/health-35762713?ocid=socialflow_facebook&ns_mchannel=social&ns_campaign=bbcnews&ns_source=facebook

Original Article Source:

http://www.nature.com/articles/nature17181.epdf?referrer_access_token=hYkN2vk4Uf0vOucdrSaJq9RgN0jAjWel9jnR3ZoTv0M2hGjJNQuMopDwwVaALNQsibMrG5YsvSKclNv30JuhDXCCVpKfPNU4tWKcBiB63MLo91iHNA1wrMg2I8vmABndfRjjMidkY7PP8fs5eppSC--hGgjHHMqbP4bYkcOJBZwdr22a2Tp_udJEo9fL13bDXye06cakIX2wwUWU-0-xVw2Q_B1F28KVroMxV_iKzTu2J_pg4Zjrpy8css4dv8Xr83kZzEjudnZondM-cTFVg%3D%3D&tracking_referrer=www.bbc.com

Date: Monday, 14 March 2016

From: Sneha A (sneha.krishnan@indiavisioninstitute.org)

Subject: **Bio-engineered pig corneas helping to restore vision in China**

Bio-engineered corneas made from pigs' eyes in China may help millions of patients to see again, ophthalmologists have said.

A 14-year-old boy regained his sight after receiving a pig cornea transplant on February 25, said Yuan Jin of Sun Yat-sen University ophthalmology centre in the southern Chinese city of Guangzhou. The boy had injured his right eye with a firecracker during New Year celebrations. "He developed ulcer in his right eye and had lost his sight before the transplant. A week after the transplant, he had regained some vision. In the future his sight may be close to normal," Mr. Yuan told state-run Xinhua news agency.

Every year, more than five million Chinese patients are blinded by cornea disorders or damage. The demand for cornea transplants far exceeds supply, so bio-engineered solutions could restore the eyesight of millions of Chinese, Mr. Yuan said.

Research into the use of animal corneas began in 2003 at Ainier Cornea Engineering Company, Shenzhen and the Fourth Military Medical University, Xi'an. After success in animal tests, clinical tests were carried out in 2010 on 100 patients in four hospitals in Beijing and Wuhan, with 94 patients regaining some or all of their vision.

Artificial corneas are not a miracle cure for all disorders, however, they cannot help, for example, with severe penetration wounds.

Zhang Bin, director of Ainier Cornea, said initial trials were conducted using tissue from chickens, cows, ducks, geese, monkeys and sheep before pigs were selected. Some corneas may carry viruses and pig tissue was found to have the lowest risk of infection in the recipient. The bio-mechanical properties of human and pig corneas are very similar, he said.

For full article, please visit:

<http://www.thehindu.com/news/international/bioengineered-pig-corneas-helping-to-restore-vision-in-china/article8348712.ece>

Subject: Optometrists on contract basis

India Vision Institute (IVI) is compiling a database of Optometrists available to be hired on contract basis for vision screening programs across India. They will be contacted based on the location and date of the program. There is provision for standard remuneration for those taking part in the screening.

If you wish to be part of the database, please send your current CV along with a brief description of vision screening activities you would have conducted to Ms Sandhya Shekar at: sandhya.shekar@indiavisioninstitute.org or call at 08754473472. You can also request further details, if required.

From: Soft ARK Resources Private Limited (lokesh@softark.in)

Subject: Application Specialist – Refractive (Job Opening)

Job Description

- Evaluate refractive and femto cataract related outcome issues
- Provide high level training for customers and staff on relevant diagnostic techniques and results
- Support refractive and femto cataract surgeries
- Gather, record, and analyse surgical outcomes data
- Generate new leads for refractive and femto cataract equipment's.

Location – Delhi

Company Name – Softark

Company Email - lokesh@softark.in

Vacancy – 3

Interested candidates can mail their updated CV at lokesh@softark.in

India Vision Institute

Plot No 212, No 45, Palkalai Nagar,

7th Link Road, Palavakkam,

Chennai - 600041, TN, India

Tel. No. : +91 - 44 - 24515353.

Email: ivi@indiavisioninstitute.org

Web: www.indiavisioninstitute.org

Note:

To subscribe OptDistList, please send an email to info@indiavisioninstitute.org with the subject line titled 'SUBSCRIBE'

To unsubscribe OptDistList, please send an email to info@indiavisioninstitute.org with the subject line titled 'UNSUBSCRIBE'.

Administrivia:

The OptDistList is a service provided by the India Vision Institute (IVI)

DistList postings are for informational purposes only and do not imply endorsement by IVI

Instructions for DistList postings:

IVI invites contributions including latest updates and new developments in Optometry, innovative ideas, optometry job vacancies, conferences, links to interesting articles and other latest happenings. All contributions need to be in word format (not more than two to three paragraphs including a title). Send in your contributions with your name and contact details to info@indiavisioninstitute.org
