HEALTH NEWS

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Sugar Added to Food Linked to Heart Disease Risk, Cholesterol

By Nicole Ostrow, BusinessWeek

Eating sugar and other sweeteners added to packaged foods may add to heart-disease risk by changing cholesterol levels and increasing blood fats, an Emory University study said.

Those who consumed food with higher levels of sugar showed a risk ranging from 50 percent to 300 percent higher of reduced levels of the good cholesterol that protects against heart disease, according to the research. Higher sugar intake also increased triglycerides, the blood fats that raise heart disease risk, said Jean Welsh, lead author of the research released in the Journal of the American Medical Association.

The research is one of the first large studies to show added sugar changes cholesterol levels, which are risk factors for heart disease, Welsh said. U.S. consumption of sugar averages about 16 percent of daily calories from food, equivalent to about 21 teaspoons of sugar and more than double the amount recommended by the American Heart Association.

Chubby Toddlers Have Increased Risk of Heart Disease, Diabetes

By Rosemary Black, NY Daily News

Chubby toddlers look adorable, but as grownups they may have an increased chance of developing heart disease and diabetes.

Chronic disorders like these may germinate much earlier in life than was previously believed, according to research reported on MSNBC.com, and obesity may be a factor. The markers for cardiovascular disease have been noted in kids as young as three, according to the site, and kids has young as seven already have the warning signs of Type 2 diabetes.

An increase in the number of overweight youngsters and a decrease in their level of exercise may be the reasons why signs of chronic diseases are showing up in kids.

Newer Blood Test Predicts Diabetes, Heart Disease

By Serena Gordon, US News & World Report

A1C outperforms fasting glucose in predicting heart disease and stroke risk, study finds. The newer hemoglobin A1C test predicts diabetes as well as the traditional fasting blood sugar test, but it beats that old standard in predicting a patient's future risk of heart disease and stroke, new research shows.

After adjusting for common cardiovascular disease risk factors, the study found that while A1C levels high enough to diagnose diabetes were associated with nearly twice the risk of coronary heart disease, no such association was found with fasting glucose readings high enough to trigger a diabetes diagnosis.

Watch Your Cholesterol, Your Blood Pressure ... and This Enzyme?

By Bloomberg BusinessWeek

An enzyme linked to inflammation boosts the risk of heart disease as much as high blood pressure and high cholesterol, a new study suggests. Researchers think that by targeting the enzyme, which is known as lipoprotein-associated phospholipase A2, they may have another weapon to fight heart disease.

The enzyme is thought to be produced during inflammation, the body's immune response to damage and invaders. Its levels appear to be higher in people whose arteries are most affected by inflammation

Cancer Drug Effectiveness Substantially Advanced

Researchers have shown that a peptide (a chain of amino acids) called iRGD helps co-administered drugs penetrate deeply into tumor tissue. The peptide has been shown to substantially increase treatment efficacy against human breast, prostate and pancreatic cancers in mice, achieving the same therapeutic effect as a normal dose with one-third as much of the drug.

Sanford-Burnham Scientists Identify Natural Compound that Inhibits Cancer Cell Migration

Investigators at Sanford-Burnham Medical Research Institute led by Kristiina Vuori, M.D., Ph.D., have discovered that the natural compound sceptrin, which is found in marine sponges, reduces cancer cell motility (movement) and has very low toxicity.

Dana-Farber and Sanford-Burnham Institute License Flu-targeting Antibodies to Genentech and Roche

Dana-Farber Cancer Institute and the Sanford-Burnham Medical Research Institute have signed a license agreement with Genentech, a wholly owned

member of the Roche group, and Roche, that grants them exclusive rights to manufacture, develop and market human monoclonal antibodies to treat and protect against group 1 influenza viruses

Delivering Medicine Directly into a Tumor
Researchers at Burnham Institute for Medical Research at University of California, Santa Barbara have identified a peptide (a chain of amino acids) that specifically recognizes and penetrates cancerous tumors but not normal tissues. The peptide was also shown to deliver diagnostic particles and medicines into the tumor

Adult Death Rates Lowest in Iceland, Cyprus
By Maria Cheng
Men in Iceland and women in Cyprus have the lowest risk of dying worldwide, a new study says. In a survey from 1970 to 2010, researchers found a widening gap between countries with the highest and lowest premature death rates in adults aged 15 to 60. The study was published in the medical journal, Lancet.

Only a few countries have cut death rates by more than 2 percent per year in the last 40 years: Australia, Italy, South Korea, Chile, Tunisia and Algeria. The U.S. lagged significantly behind, dropping to 49th in the rankings for women and 45th for men. That puts it behind all of Western Europe as well as countries including Peru, Chile and Libya. Death rates were highest for men in Swaziland and for women in Zambia.

Study: Shaken-Baby Cases Rose During the Recession
By Alice Park
The stressful effects of a faltering economy, skyrocketing unemployment and precarious personal finances can be dire. People take up smoking and use alcohol to cope; they become depressed or suicidal; and they develop stress-related illness such as heart disease. Now researchers report that the harm may be spreading to children too, when parents' stress causes them to inadvertently injure to their children. Presenting at the Pediatric Academic Societies annual meeting in Vancouver, a team of researchers led by child abuse expert Dr. Rachel Berger at Children's Hospital of Pittsburgh reported a significant increase in cases of shaken baby syndrome, in which youngsters are shaken violently by an adult, since the start of the current recession. Researchers analyzed data on 512 cases of head trauma in the children's centers of four hospitals in Pittsburgh, Cincinnati, Columbus and Seattle, and found that the number of cases had increased to 9.3 cases per month since Dec. 1, 2007, compared with 6 cases per month prior to that date.

Provenge Approved for Advanced Prostate Cancer
HealthDay News
Provenge (sipuleucel-T), a therapy designed to boost the immune system's ability to combat prostate cancer, has been approved by the U.S. Food and Drug Administration.

The therapy is produced by obtaining the person's own immune cells, exposing them to a protein found in most forms of prostate cancer, then returning them to the donor. The therapy is administered three times, each approximately two weeks apart, the agency said in a news release.

Local Anesthetic May Relieve PTSD Symptoms
HealthDay News
Injecting a local anesthetic next to a group of nerves in the neck, known as the stellate ganglion, is a fast-acting and effective way to treat combat-related post-traumatic stress disorder (PTSD), U.S. military researchers report.The 10-minute procedure, called a stellate ganglion block, has been used to treat chronic pain and certain other health problems since 1925, according to background information in a news release about the research

The 5 Biggest Medical Breakthroughs of 2008-2009
By Seth Czarnecki
Reviewed by QualityHealth's Medical Advisory Board
Cutting the Amount of Colon Cancer Cases.
For many, going for the "old-fashioned" colonoscopy can be, well, uncomfortable. Many opt for the virtual colonoscopy in which a doctor uses an x-ray to look for polyps and cancers. While this method is effective in finding these protrusions, a 2008 study found that 9 percent of patients receiving a colonoscopy have flat or recessed lesions. These growths are almost ten times as likely to be cancerous as the typical polyp.

Dynamic Duo for Stroke Sufferers.
For approximately four years, doctors have known that administering excess tPa—a naturally occurring hormone that dissolves blood clots—in a patient suffering a stroke can reduce long term effects of the event. However, in the last year doctors at the University of Alabama-Birmingham Comprehensive Stroke Center, and doctors at the Vall d'Hebron Hospital in Barcelona, Spain have found that when tPa is administered alongside transcranial Doppler (TCD) ultrasound increases the effectiveness in treating patients suffering ischemic stroke. According to the American Heart Association (AHA), stroke is the third leading cause of death in the U.S. and the number one leading

cause of disability. This new development in stroke treatment is surely a breath of fresh air.

Improvements in Osteoporosis Treatment.
A hotly debated topic among doctors is whether or not to administer bone density drugs for women who have borderline results on their bone mineral density test (BMD). This debate may become out-of-date due to a new test called FRAX developed by the World Health Organization. Unlike traditional bone density tests, FRAX takes into account those "other" factors that can raise your risk for fractures. The test uses 12 factors including age, weight, family history, and various illnesses to determine a 10-year risk of breaking a bone due to osteoporosis.

Bettering Breast Cancer Treatment.
For those of us who know someone who faced early-stage breast cancer, the 5-7 weeks of intense chemotherapy is emotionally, physically, and mentally draining for all involved. Due to a 12 year Canadian study, the amount of time spent on radiation treatment can be cut in half. According to the study, administering a higher dose over a 3-week period is just as effective. Regardless of this new discovery, keeping up with your mammograms is essential to your overall health. You love your breasts...so keep them.

New and Natural Ways to Control Your Hunger.
We've all seen the commercials with the miracle pill or diet that will change your eating habits and control your hunger. If you're more impressed by scientific means to weight loss, then a 2008 Swedish study has good news for you. The study found that "resistant starch" helps suppress appetite. Found in potatoes, brown rice, corn, whole grain breads, and beans, this starch digests more slowly, or "resists" digestion—making you feel full for a longer period of time. What's more, resistant starches are high in fiber, can help regulate blood sugar levels, increase energy, and aid in digestive health.

Study Looks at the Relationship Between Level of Habitual Duration of Sleep and Mortality
University of Warwick
Research carried out by the University of Warwick in collaboration with the Federico II University Medical School in Naples, Italy, has found that people who sleep for less than six hours each night were 12% more likely to die prematurely than those who get the recommended 6-8 hours.

The study, published today in the journal *Sleep*, provides unequivocal evidence of the direct link between short duration of sleep (less than 6 hours sleep a night) and an increased chance of dying prematurely.

The research also notes that consistent over long sleeping (over 9 hours a night) can be a cause for concern. While, unlike short sleeping, over long sleeping does not in itself increase the risk of death, it can be a significant marker of an underlying serious and potentially fatal illnesses.

The study looked at the relationship between the level of habitual duration of sleep and mortality by reviewing 16 prospective studies from the UK, USA, European and East Asian countries. Professor Francesco Cappuccio, leader of the Sleep, Health and Society Programme at the University of Warwick and Consultant Physician at the University Hospitals Coventry and Warwickshire NHS Trust, said "whilst short sleep may represent a cause of ill-health, long sleep is believed to represent more an indicator of ill-health".
He said: "Modern society has seen a gradual reduction in the average amount of sleep people take, and this pattern is more common amongst full-time workers, suggesting that it may be due to societal pressures for longer working hours and more shift-work. On the other hand, the deterioration of our health status is often accompanied by an extension of our sleeping time".

"Consistently sleeping 6 to 8 hours per night may be optimal for health. The duration of sleep should be regarded as an additional behavioural risk factor, or risk marker, influenced by the environment and possibly amenable to change through both education and counselling as well as through measures of public health aimed at favourable modifications of the physical and working environments" Professor Cappuccio added.

New Drug Treatments hold Promise for Crohn's Disease and Hepatitis C Patients
Research being presented at Digestive Disease Week® (DDW®) shows that using telaprevir in the treatment regimen for hepatitis C virus (HCV) is highly effective, particularly in difficult-to-treat cases. Further studies show that aspirin may be a factor in the development of inflammatory bowel disease. DDW is the largest international gathering of physicians and researchers in the field of gastroenterology, hepatology, endoscopy and gastrointestinal surgery.

"Treatment for hepatitis C has historically been challenging, with available treatment options being uncomfortable for the patient and sometimes ineffective, but the science presented here offers hope for the patients living with the infection and the doctors who treat them," said Philip S. Schoenfeld, MD, MSEd, MSc (Epi), associate professor of medicine University of Michigan School of Medicine. "Inflammatory bowel

disease, including Crohn's disease, has been historically difficult to treat, partly because we're still learning how the disease occurs. These data will help us better understand this debilitating disease."

Unlocking a Medical Mystery: Stuttering

By Tabby Biddle

Reviewed by QualityHealth's Medical Advisory Board

Roughly 3 million people in the United States stutter, according to the National Institutes of Health (NIH). Scientists have been looking for the cause of stuttering for thousands of years, and the condition has been considered a longtime medical mystery. Research published earlier this year in the *New England Journal of Medicine,* however, may have unlocked some answers. The study, led by researchers at the National Institute on Deafness and Other Communication Disorders (NIDCD), part of the NIH, reveals three genetic mutations in the brain cells of people who stutter. The cells are located in the part of the brain that controls speech, which suggests that genes could play a big role in the disorder.

Experts say that knowing the genetic underpinnings of the disorder could unlock even more genes associated with stuttering, which could lead to more specific diagnosis and treatment.

Stuttering, also referred to as stammering, is a disruption in the normal flow of speaking. For people with the disorder, speech comes out in fits and starts, certain syllables may be prolonged or repeated, and for some, stuttering is accompanied by involuntary facial tics.

Research shows that about 60 percent of those who stutter have a family member who also stutters. The condition is most common among children, although about one percent of people carry the condition through adulthood, according to the Stuttering Foundation of America.

While previous studies have suggested that stuttering is connected to genetics, the specific genes had not been identified. This is the first study to pinpoint specific gene mutations as the potential cause of stuttering.

According to Dennis Drayna, Ph. D. a geneticist at the NIDCD and co-author of the study, the findings of the study reinforce that stuttering, at its basis, is a biological disorder, and that it is unlikely that stuttering is an emotional disorder or a social disorder.

He argues that the sooner that stuttering is recognized as a biological disorder, the sooner scientists and medical professional can get down to using that understanding to better treat the disorder.

What to Do

While there is no specific cure yet for stuttering, there are some steps you can take to support yourself.

- *Connect with other people.* It can be helpful to connect with other people who stutter. Several organizations offer support groups. Along with providing encouragement, support group members may offer advice and coping tips you might not have considered.

- *Consider speech therapy.* Although speech therapy has not been shown to eliminate stuttering, a speech pathologist who is knowledgeable about stuttering can almost always help adults and teens who stutter make positive changes in their communication skills. You can get a referral from the two organizations mentioned above.

- *Consider stress management practices.* Feeling stressed, hurried or pressured can increase stuttering. Mind-body practices such as yoga and tai chi can help keep you calm and relaxed, and give you an overall sense of well-being.

Long-Term Harm of too Much TV for Toddlers

- The more TV a toddler watches, the higher the likelihood they will do badly at school and have poor health at the age of 10, researchers warn.

- The study of 1,300 children by Michigan and Montreal universities found negative effects on older children rose with every hour of toddler TV.

- Performance at school was worse, while consumption of junk foods was higher.

- UK experts said parents could allow young children to watch "some" high quality TV.

A New Biological Explanation for Sadness in Early Postpartum

From Centre for Addiction and Mental Health, greater levels of a brain protein called monoamine oxidase A (MAO-A) may explain why postpartum blues and clinical depression are so common after childbirth according to an important study published today in the *Archives of General Psychiatry*.

Using an advanced brain imaging method, researchers at the Centre for Addiction and Mental Health discovered that levels of brain MAO-A in healthy women four to six days after delivery were 43% greater as compared to women not recently pregnant. The findings were strongest on day 5, the day when postpartum blues is usually the most severe.

MAO-A removes chemicals like serotonin that help maintain a normal mood. Greater MAO-A levels mean that this removal process is overly active making people feel sad.

Viruses Against Cancer Complete Regression of Malignant Brain Tumors After Treatment with Parvoviruses

Particular parvoviruses normally infect rodents, but they are also infectious for human cells. However, they do not cause any disease symptoms in humans. Most importantly, these viruses have an astonishing property: They kill infected tumors cells without causing any damage to healthy tissue. Therefore, scientists in the teams of Jean Rommelaere and JArg Schlehofer at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) have been investigating over the past years whether these viruses can be used as weapons against cancer.

Many different viruses have been tested before in cancer therapy, particularly for treating those types of cancer for which there are no effective established treatment methods. The DKFZ researchers realized early on that parvovirus H-1 has important advantages over other viruses. Now they have been the first to prove that malignant glioblastomas regress completely as a result of treatment with these viruses.

The treatment experiments were conducted in rats who had received brain tumors cells by implantation. Once the resulting brain tumors had reached a specified size, the animals were given parvoviruses, either by direct injection into the tumor or via the blood stream. In those animals in which the viruses had been injected directly into the tumor, the tumors shrank visibly after only three days and even disappeared completely in eight of twelve animals treated. The rodents survived without any symptoms, while untreated control animals suffered from severe disease symptoms within three weeks following tumor cell implantation. In the intravenously treated group, tumors regressed completely in six of nine animals. The animals have survived for more than one year now without any symptoms or late side effects of therapy.

Flaxseed-Fed Chickens Shed Light on Ovarian Cancer.

University of Illinois College of Agricultural, Consumer and Environmental Sciences.

In the race to find answers about ovarian cancer, researchers now have something to cluck about. For five years, University of Illinois researchers have been using the chicken as a model to study this deadly disease and have recently discovered that a diet enriched with flaxseed decreases severity of ovarian cancer and increases survival in hens.

Flaxseed is the richest plant source of alpha-linolenic acid, one type of omega-3 fatty acid. Several studies have already shown that flaxseed inhibits the formation of colon, breast, skin and lung tumors.

For these reasons, it was logical to study how omega-3 fatty acids affect ovarian cancer as there continues to be no effective treatment at this time, said Janice Bahr, a professor emerita in the U of I Department of Animal Sciences and one of the nation's leading poultry researchers.

According to Bahr, 25,000 women are diagnosed with ovarian cancer each year and 15,000 die. The incidences of death in other cancers have dropped recently, but ovarian cancer death rates have remained the same.

"The chicken is the only animal that spontaneously develops ovarian cancer on the surface of the ovaries like humans," Bahr said. "In this study, we evaluated how a flaxseed-enriched diet affected 2-year-old laying hens (hens that have ovulated as many times as a woman entering menopause)."

The results showed that hens fed a flaxseed-enriched diet for one year experienced a significant reduction in late-stage ovarian tumors.

"Most women diagnosed with ovarian cancer have a very poor prognosis because they are not diagnosed until stage 3 or 4 when the cancer has metastasized and spread to other parts of the body," Bahr said.

Hens fed the control diet had significantly more late-stage tumors that presented with fluid and metastases as compared to the hens fed a flaxseed diet. Though hens fed the flaxseed diet did not have a decreased incidence of ovarian cancer, they did experience fewer late-stage tumors and higher survival rates.

"In hens fed flaxseed, we found that more tumors were confined to the ovary and they had less metastatic spread," she said. "This is an important finding as the metastases that accompany late-stage ovarian cancer are the main cause of death from this disease. If the cancer is found at an early stage, when the tumor is still confined to the ovary, women have a much better prognosis and more treatment options."

In addition, researchers found that hens fed the flaxseed diet had better weight control which is important because obesity increases cancer risk. Both diets had equal caloric content, however the flaxseed-fed

hens weighed less at six months than the control-fed hens. But at 12 months, the flaxseed-fed hens were the same weight and the control-fed hens had lost significant weight, which was indicative of their failing health. Ultimately, the flaxseed-enriched diet helped the birds maintain a healthy weight and resulted in less sickness and death.

"Through this research, we have proven that flaxseed supplementation for one year is able to reduce the severity of ovarian cancer in hens," she said. "These findings may provide the basis for a clinical trial that evaluates the efficacy of flaxseed as a chemosuppressant of ovarian cancer in women."

Discovery of New Prostate Cancer Marker in Urine

Howard Hughes Medical Institute researchers have identified a new biological marker present in the urine of patients with prostate cancer that indicates whether the cancer is progressing and spreading.

In experiments reported in the February 12, 2009, issue of the journal *Nature,* the scientists identified 10 metabolites that become more abundant in prostate cells as cancer progresses. Their studies showed that one of these chemicals, sarcosine, helps prostate cancer cells invade surrounding tissue.

HHMI investigator Arul Chinnaiyan and colleagues at the University of Michigan showed that as prostate cancer develops and progresses, sarcosine levels increase in both tumor cells and urine samples, suggesting that measurements of the metabolite could aid in non-invasively diagnosing the disease. Researchers might also be able to inhibit prostate cancer's spread by designing drugs that manipulate the sarcosine pathway.

VCU Researchers Identified Genetic Causes of Pediatric Brain Tumors

An extremely aggressive brain tumor known as a medulloblastoma typically originates in the cerebellum, the area of the brain responsible for the coordination of voluntary movement and helps maintain balance and muscle tone. Unfortunately, treatment options such as chemotherapy and radiotherapy can cause severe developmental and cognitive deficits.

Recently published findings in *Nature Genetics* may one day help researchers develop a therapy to target the specific pathway and block the genetic changes from occurring, possibly preventing tumor growth.

The discovery that genetic alternations to a molecular pathway result in the growth of medulloblastomas was reported by the VCU Medical Center's Pediatric Brain Tumor Research Program. The team looks globally at the tumor-specific genetic changes that transform normal brain cells into cancerous cells, giving rise to pediatric brain tumors - the leading cause of death from childhood cancer.

VapoRub can Cause Harm if Improperly Used

Improper use may cause respiratory distress, researchers say; though company says product is safe.

Findings published in the January 2009 edition of the medical journal Chest argued that putting VapoRub close to or inside your nose may cause airway inflammation. Vicks VapoRub is widely used and known throughout for various respiratory problems. The medical study reports that the product may stimulate mucus production and airway inflammation, which can have severe effects on the breathing of infants and young children because of the small size of their airways.

The Nobel Prize in Physiology or Medicine 2009 was awarded jointly to Elizabeth H. Blackburn, Carol W. Greider and Jack W. Szostak for the discovery of "how chromosomes are protected by telomeres and the enzyme telomerase"

Summary

This year's Nobel Prize in Physiology or Medicine is awarded to three scientists who have solved a major problem in biology: how the chromosomes can be copied in a complete way during cell divisions and how they are protected against degradation. The Nobel Laureates have shown that the solution is to be found in the ends of the chromosomes – the telomeres – and in an enzyme that forms them – telomerase.

The long, thread-like DNA molecules that carry our genes are packed into chromosomes, the telomeres being the caps on their ends. Elizabeth Blackburn and Jack Szostak discovered that a unique DNA sequence in the telomeres protects the chromosomes from degradation. Carol Greider and Elizabeth Blackburn identified telomerase, the enzyme that makes telomere DNA. These discoveries explained how the ends of the chromosomes are protected by the telomeres and that they are built by telomerase.

If the telomeres are shortened, cells age. Conversely, if telomerase activity is high, telomere length is maintained, and cellular senescence is delayed. This is the case in cancer cells, which can be considered to have eternal life. Certain inherited diseases, in contrast, are characterized by a defective telomerase, resulting in

damaged cells. The award of the Nobel Prize recognizes the discovery of a fundamental mechanism in the cell, a discovery that has stimulated the development of new therapeutic strategies.

Discovery Could Help Diabetics and Others with Slow-to-Heal Wounds

Loyola University Health System

A new discovery about the wound-healing process could lead to better treatments for diabetics and other patients who have wounds that are slow to heal.

Loyola University Health System researchers found that certain immune system cells slow the wound-healing process. Thus, it might be possible to improve healing by inactivating these immune system cells, said Elizabeth Kovacs, PhD, who heads the laboratory team that made the discovery.

The findings by Kovacs and colleagues are reported online, in advance of print, in the *Journal of Surgical Research.*

In the study, the immune system cells that impeded the healing process are called natural killer T (NKT) cells. NKT cells perform beneficial functions such as killing tumor cells and virus-infected cells. However, researchers discovered that NKT cells also migrate to wound sites and impede the healing process.

Top 10 Medical Device Technologies (2009 - 2014)

1. Diagnostic imaging (nuclear imaging, interventional radiology, capsule endoscopy and others)
2. Drug delivery (needle free injections, transdermal systems, inhalation system, infusion system)
3. Molecular diagnostics (biosensors, proteomics, nanotechnology, and others)
4. Mobility aid technologies
5. Minimal/non - invasive surgery (stents, bariatric surgery, medical robotics and others)
6. Micro-fluids and MEMS (Miniature medical pressure sensors, bio chips, protein chips)
7. Non-invasive monitoring (continuous blood glucose monitoring)
8. Biomaterials (bionic limbs, joint replacement, antimicrobial wound dressing and others)
9. Bio-implants (neurostimulation and others)
10. Tele-medicines

Glaucoma's Unique Protein Expression could Enhance Diagnosis and Treatment

Medical College of Georgia

An eye under pressure appears to express a unique set of proteins that physicians hope will one day help them better diagnose and treat glaucoma.

Glaucoma, the second leading cause of blindness worldwide, tends to progress silently until decreased vision indicates trouble, said Dr. Kathryn Bollinger, Medical College of Georgia clinician-scientist specializing in glaucoma.

But inside fluid-filled eyeballs, a changing protein profile 30 with significant increases and 17 with significant decreases identified among hundreds of proteins present appears to also give a heads-up, Bollinger reported during the Association for Research in Vision and Ophthalmology Annual Meeting . The MCG ophthalmologist received the 2010 ARVO/Alcon Early Career Clinician-Scientist Research Award for the study. With glaucoma, elevated pressures inside the eyeball stress the optic nerve and nerve arms called axons that reach out to communicate with the brain. Over time, increased pressure can kill nerve cells and axons and decrease vision. "At this point, we don't have a regenerative strategy," Bollinger said.

Next steps include identifying additional proteins expressed in glaucoma, determining the impact of the unique protein profile on the trabecular meshwork and clarifyingTGF-I²'s normal role inside the eye, Bollinger said.

Risk factors for glaucoma include age, a family history and black and Asian ethnicity.