



SCIENTIFIC AMERICAN

60-SECOND SCIENCE

Leading science journalists provide a daily minute of commentary on some of the most interesting developments in the world of science. For a full-length, weekly podcast you can subscribe to Science Talk: The Podcast of Scientific American.

60





March 2, 2009

Prions Involved in Some Alzheimer's

A study in the journal *Nature* finds that prions can team up with amyloid beta, the protein that forms the big plaques in Alzheimer's, to make the condition much worse. Karen Hopkin reports

[The following is an exact transcript of this podcast.]

It's like the molecular version of the Joker and the Riddler teaming up against Batman. Scientists at Yale University have discovered that amyloid beta, a protein involved in Alzheimer's disease, can damage brain cells by binding to prion proteins, which are themselves infamous because, in their abnormal form, they cause things like mad cow disease.

Amyloid beta is best known as the protein that forms the giant plaques that riddle the brains of people with Alzheimer's. Those plaques contain billions of copies of amyloid beta all stuck together in one gloppy mess. But the protein also exists in a more soluble form, either in single units or in small groups of 50 or 100. These smaller clusters don't cause the same large-scale mayhem as plaques, but they do damage neurons, impairing their ability to learn. And the Yale researchers wanted to find out how.

They discovered that amyloid beta binds to the prion proteins normally found on neurons. What's more, the prions ramp up amyloid beta's neurotoxic effects. Take away the prions and amyloid-beta clusters are harmless, findings published in the journal *Nature*. So drugs that prevent this amyloid–prion coupling could be a potent weapon against Alzheimer's.

—Karen Hopkin



March 3, 2009

We Like a Winning Face

A study published recently in the journal *Science* shows that we tend to choose leaders based on their appearance. Cynthia Graber reports

[The following is an exact transcript of this podcast.]

We like to think we're pretty sophisticated when it comes to voting for politicians. Oh, sure, we've all heard that the taller guy usually wins. But we're being smart—we consider their policies and positions.

Or maybe not. Researchers at the University of Lausanne in Switzerland say our decisions are often based on appearance—and that we're no different from children. The finding appears in the February 27 issue of the journal *Science*.

Scientists took photos of the winner and the runner up from a 2002 election in France. They showed the two photos to people in Switzerland who hadn't heard of either candidate. They asked—who do you think would be the most competent?

Well, most study participants chose the actual winner. Then it was time for the kids. More than 600 children played a game involving a computer-simulated boat trip. They were asked which person they'd prefer to captain the ship. And most of the kids also chose the actual election winner.

Study authors say they don't know which specific facial cues kids and grown-ups are using to make their decisions. Voting is one of democracies most important civic duties. But for a lot of voters, it looks like it's about liking looks.

—Cynthia Graber



March 4, 2009

Like Father, Like Daughter

New research shows that more and more daughters are following in their father's footsteps. Cynthia Graber reports

[The following is an exact transcript of this podcast.]

Over the past 50 years more and more women have entered the work force. And they're increasingly taking on jobs that have traditionally gone to men.

Now new research shows that the women's fathers may be having an influence on what those jobs are.

Researchers from North Carolina State University and the University of Maryland examined three large surveys conducted from 1973 to 2002. More than forty thousand women had taken part. They included women born from 1909 to 1977—three generations over three quarters of a century.

This broad examination of women's roles clearly showed a rise in what had been male-dominated fields. But the surveys also contained information on what jobs the fathers held. And it turned out as time progressed, there was a distinct change. Women born in the 1970s were three times more likely to follow in their dads' footsteps.

Researchers can't say exactly what this means about father-daughter relationships. Maybe dads are investing more time in educating their daughters. Maybe they're talking more about their own jobs. But dads and daughters appear to be taking career paths that bridge both the generation and gender gaps.

—Cynthia Graber



March 5, 2009

Morally Repugnant

A recent study in the journal *Science* shows that we display the same facial reaction to moral wrongs as we do to bad tastes or smells. Karen Hopkin reports

[The following is an exact transcript of this podcast.]

“Well, that just leaves a bad taste in my mouth.”

It’s a phrase you’ve likely used at one time or other. And chances are you were talking about something you found morally offputting, as opposed to, say, curdled milk.

Scientists from the University of Toronto say that our reactions to immorality and sour milk may be more similar than we think, because both elicit the same sort of grimace of disgust.

The scientists recorded the facial expressions of subjects who were asked to sip some awful-tasting beverages; brews that were really bitter, salty, or sour. And the drinkers pulled some pretty awful faces, with noses wrinkling and lips curling in disgust. They also made very similar faces when they were shown some yucky photos: pictures of dog poop or dirty toilets.

Finally, the subjects played a game in which they were treated unfairly: say, given only one dollar while a partner got nine dollars. In addition to looking peeved, they also trotted out those sneers of disgust. Findings published in the February 27th issue of *Science*.

The scientists conclude that our aversion to bad behavior and to bad food may have evolved from a primitive defense mechanism that nowadays protects us from both insult and injury.

—Karen Hopkin



March 6, 2009

Waking in the Dark: Daylight Saving Time

Remember to turn clocks ahead one hour this weekend and, if possible, sleep in until the sun rises. Sleep researchers say waking with light is the best remedy for the winter doldrums. Christie Nicholson reports

[The following is an exact transcript of this podcast.]

Ticking clock indeed. Already it's time to turn clocks forward one hour this Sunday morning, March 8th.

Two years ago Congress ordered Daylight Saving Time to launch three weeks early, in an effort to save energy. More evening light may mean less electricity used.

But it also means more blues for those prone to winter depression. The change sets us back to mid-January in terms of morning light, according to Michael Terman, a biological rhythms expert at Columbia University.

Light is what preps us for waking, alerting the brain to increase body temperature and cortisol, and decrease melatonin. When we're forced to wake in darkness, we feel like it's the middle of the night, and from our body's perspective it is, and we're tired.

Terman's recent research shows there is more depression on the western edges of time zones in the U.S., where the sun rises later.

Simplest way to combat this, says David Avery, professor of psychiatry at the University of Washington, is to use a dawn simulator, a device that creates gradual light, or program your bedside lamp to turn on about 20 minutes before you wake up.

—Christie Nicholson



March 9, 2009

Energy Saving Servers

Researchers at the University of Michigan propose that the servers running our data centers be put to sleep when idle, just like our personal computers, in order to save up to 75 percent of the billions of kilowatt hours they use annually. Christie Nicholson reports.

[The following is an exact transcript of this podcast.]

Most of us know we save energy when we put our idle computers to sleep. But what about the servers that run data centers?

Every cell phone call, ATM request, Web search is routed through data centers. And the energy used is predicted to exceed 100 billion kilowatt hours by 2011, with an annual cost of \$7.4 billion dollars, according to the Environmental Protection Agency. This is nearly double the energy centers used in 2006.

Servers are really inefficient. They take in 60 percent of peak power, even when they do nothing.

Researchers at the University of Michigan, propose that servers be put to sleep when idle. They're presenting the paper, "PowerNap: Eliminating Server Idle Power" this week in Washington D.C.

Servers would have to sleep and wake at a millisecond rate. While the hardware for fast sleeping computers exist, servers lack a person to close the lid. So it would require a redesign of the operating system to coordinate this instantaneous waking and sleeping.

Researchers say their plan will save nearly 75 percent of the energy taken up by these machines. If true, it's probably worth the pain of renovation.

—Christie Nicholson



March 10, 2009

The Baby Nobels

SciAm.com met up with the 40 finalists of the Intel Science Talent Search, considered the "Super Bowl" of science. Christie Nicholson reports

[The following is an exact transcript of this podcast.]

So check this out: "Hi my name is [Adi Rajagopalan](#), I'm going on 18 in a few days, and my project was *Modelling Synergistic Cellulolytic-Hemicellulolytic Enzyme Complexes for Lignocellulosic Hydrolysis*."

And this: "Hi my name is [Christine Shrock](#), I'm 18 and my project is *Effects of Lid Dynamics on the Binding of MDM2 to the Tumor Suppressor Protein p53 with Implications for Cancer Therapeutics*."

Now does that sound like any science fair project you created? Yeah me neither. But these two bright young students are finalists in the pinnacle of all science fairs, the [Intel Science Talent Search](#), sometimes referred to as the "baby nobels," where 40 of America's brightest scientific talents were chosen from more than 1,600 high school applicants.

Intel and the [Society for Science and the Public](#), rewarded finalists with a trip to D.C., where they presented their projects at the National Academy of Sciences, and yesterday, discussed the importance of math and science in a meeting with President Obama.

Since its launch as the [Westinghouse Science Talent Search](#), in 1942, finalist alumni have won seven Nobel Prizes, two Fields Medals, three National Medals of Science and ten MacArthur Foundation Fellowships.

So let's translate those two projects mentioned earlier.

Here's Adi's again, "*Modelling Synergistic Cellulolytic-Hemicellulolytic Enzyme Complexes for Lignocellulosic Hydrolysis*," Which means, "I basically built mathematical models which helped us reduce the cost of a type of alternative energy called cellulosic ethanol."

And here's Christine's: "*Effects of Lid Dynamics on the Binding of MDM2 to the Tumor Suppressor Protein p53 with Implications for Cancer Therapeutics*," and this translates to, "just changing the shape of a little part of a molecule to help cure cancer."

Simple right? Uh yeah.

Tonight at a black tie gala award ceremony at the [Mellon Auditorium](#) the best of the best will be awarded nearly a half a million dollars in scholarships and prizes, including the grand prize of \$100,000. Stay tuned, results will be posted on [SciAm.com](#).

—Christie Nicholson



March 11, 2009

Primate Not So Innocent

A study in the journal *Current Biology* shows that chimps can make long-term plans--because one was found saving up stones to throw at people. Cynthia Graber reports

[The following is an exact transcript of this podcast.]

Conscious planning for the future was thought to be a cognitive behavior unique to humans. Not anymore. Researchers in Sweden have found a zoo chimp that's clearly been making plans. They watched him for a decade and came to an inescapable conclusion. He was stocking up on stones to throw at visitors. The research was published in the March 9 issue of *Current Biology*.

When the chimp first got to the zoo, he didn't throw many stones. But the few times he did got quite a reaction. And his rate of stone throwing picked up. Researchers swept the chimp's area and found caches of stones. Then a caretaker hid and watched the chimp collect stones to throw later. Eventually the chimp tapped at concrete structures to break off pieces to throw.

The researchers say this behavior is different from, say, a chimp using a stick to collect termites to eat. That could be just meeting an immediate need. But the stone thrower is clearly and calmly planning ahead. Which means that chimps probably have an inner life much as we do. They can review past events and plan for the future. Which probably doesn't include any glass houses.

—Cynthia Graber



March 12, 2009

Nutrient-Powered Evolution

Recent research sheds light on the influence agricultural fertilizers can have on the evolution of aquatic animals. Adam Hinterthuer reports.

[The following is an exact transcript of this podcast.]

Farmers fertilize their fields to get the maximum yield from their crops. But the effects of these loads of nitrogen and phosphorous extend beyond the field and past the growing season. According to a study published this week by the *Proceedings of the National Academy of Sciences*, these nutrients can also drive the evolution of aquatic organisms.

Agricultural fertilizers often drain into aquatic ecosystems and spur a frenzy of growth. Eventually the growth peaks and crashes as oxygen is consumed faster than it can be replenished—a condition called eutrophication.

Using samples from two European lakes, Swiss researchers studied a century's worth of eggs buried deep in the sediment by two species of *Daphnia*, a tiny crustacean. They found that, during periods of high nutrient levels, genetically distinct hybrid species emerged. Those hybrids appeared better at surviving eutrophication and soon outnumbered the original species.

What's more, the hybrids remained the dominant *Daphnia* species decades after pollution control measures brought nutrient levels back to normal. The scientists say short-term human impacts can leave permanent changes in ecosystems and a species' genetics.

You could say we've got quite the "gene" thumb.

—Adam Hinterthuer



March 13, 2009

Car Coating That Self-Seals Scratches

A study in the journal *Science* reports that a new coating material has the ability to heal up any scratches--good news for car owners having feuds with their neighbors.

Cynthia Graber reports

[The following is an exact transcript of this podcast.]

If you get a scratch, your skin can heal itself. But if your car gets scratched, it stays scratched. Scientists at the University of Southern Mississippi think they may have solved that problem. They've developed a new material that can self-heal scratches when exposed to sunlight. They published this research in the March 13th edition of the journal *Science*.

The new technology first takes polyurethane—the coating on many cars. Then researchers added chitosan—that's a key polymer in crab and shrimp shells. The final bit thrown into the mix are minute amounts of oxetane rings, with three atoms of carbon and one of oxygen.

The researchers are trying to mimic natural processes. Here's how it works. When there's a scratch, damaging the molecule, the oxetane ring opens. It has two reactive ends. In sunlight, chitosan breaks into two chains and generates free radicals. Then those chitosan chains link up with the reactive ends of the oxetane, filling in the scratch.

Researchers say this technique is much simpler and more cost-efficient than other attempts at self-healing. So maybe in the future, when your car gets scraped, it'll be all healed up before you have to spend any of your hard earned scratch.

—Cynthia Graber



March 16, 2009

Old Energy Source Wood Be New Alternative

**A report in the journal *Science* touts the energy potential of an old resource--wood.
Karen Hopkin reports**

[The following is an exact transcript of this podcast.]

On March 11th, Interior Secretary Ken Salazar called for a “moonshot for energy independence.” He’s set up a task force to look into the large-scale production of solar, wind and geothermal energies. But he didn’t say anything about wood. That’s right: Wood. In the March 13th issue of *Science*, researchers in the U.S. and in Austria tout wood as a neglected but potentially useful source of energy.

Americans relied on wood for the bulk of their energy until the 1800s, when we fell head over heels for coal. Now in Europe, many countries are turning back to trees, and to advanced wood combustion technologies to supply heat, cooling and power to their communities. Austria alone has built more than 1,000 wood-burning plants that emit remarkably few pollutants, and have thermal efficiencies approaching 90 percent.

If chopping down forests for fuel doesn’t sound like the greenest solution to our energy needs, the scientists note that we’d have to figure out how to manage our woodsheds sustainably, to avoid slashing and burning our way to a toasty home and a bare Earth. But trees are renewable. They’re cheaper than fossil fuels. And they provide more shade than offshore windmills.

—Karen Hopkin



March 17, 2009

Fight Malaria by Helping Mosquitoes

Johns Hopkins researchers are trying to stop malaria's spread by keeping mosquitoes from becoming infected with the parasite that they pass on to humans. Cynthia Graber reports

[The following is an exact transcript of this podcast.]

People get malaria from *Anopheles* mosquitoes that themselves are infected with a protozoan parasite called *Plasmodium*. The mosquitoes do have immune systems. But the parasite has figured out how to get past the mosquito's defenses. So researchers at Johns Hopkins University Malaria Research Institute are trying to help people—by pumping up the mosquitoes' immunity.

When a mosquito takes some blood from a human, she may also ingest *Plasmodium*. The parasite ends up in the insect's gut. The mosquito immune system jumps into action as the parasites try to push through the gut wall. Most parasites do get killed, but some manage to survive that gut migration. Then they replicate and move to the salivary glands, ready to infect the next person the mosquito bites.

Researchers are tinkering with specific mosquito genes to see how they affect the development of the parasite. Their goal is to develop a genetically modified mosquito with a strengthened immune system that kills all the parasites. They say next they'd need to get the gene into enough wild mosquitoes that they would breed and pass that gene on. No simple effort. But if it works, it could be a big victory in the war against malaria.

—Cynthia Graber



March 18, 2009

Chickens, Bacteria and Flies... Oh My

Density populated chicken houses filled with flies and bacteria may enable diseases to fly the coop. Cynthia Graber reports

[The following is an exact transcript of this podcast.]

Seventy percent of all antibiotics in this country go to livestock like pigs and chickens. And concern is growing about drug-resistant bacteria that sprout up in crowded livestock facilities and may spread to humans. Now researchers suggest that a vector for that spread may be the common housefly.

Scientists from the Johns Hopkins Bloomberg School of Public Health collected samples of both flies and poultry litter at chicken houses along the Delmarva Peninsula. That's the region where Delaware, Maryland and Virginia meet up, and it has the highest concentration of what are known as broiler chickens in the U.S.

They isolated and analyzed antibiotic-resistant enterococci and staphylococci from both groups. The samples showed that the bacteria in both the flies and the litter have similar characteristics and genes for resistance. The researchers caution that they haven't shown conclusively that flies are in fact spreading the diseases. But more than 30,000 flies might enter a poultry house over six weeks. And flies are known to be vectors of viral and bacterial diseases such as cholera. Another study to add to the growing pile of research suggesting our cheap meat is not as cheap as it seems.

—Cynthia Graber



March 19, 2009

Irresistible Antibiotics

A report in the journal *Nature Chemical Biology* shows that drugs that would merely incapacitate bacteria without killing them could be the key to avoiding the growing problem of antibiotic resistance. Karen Hopkin reports

[The following is an exact transcript of this podcast.]

Imagine antibiotics that would never lose their punch. New research focuses on drugs that bacteria simply can't resist. Most antibiotics work by killing pathogens. The problem is, it's hard to kill every single microbe. The rare ones that survive reproduce, often creating a population that's antibiotic resistant.

But what if you could make a drug that renders bugs harmless, without actually killing them? In that scenario, bacteria might not evolve resistance. And that's what researchers showed in the March 9th issue of *Nature Chemical Biology*.

The key is communication. In well-trained armies, commanders bark orders, and soldiers signal each other to coordinate their positions. The same is true for a lot of infectious bacteria, which hold off mounting a full assault—complete with toxins—until there are enough of them around.

The scientists designed three different compounds that jammed cell-to-cell signaling in bacteria that cause food poisoning and cholera. And they found that the bugs remained sensitive to drugs, even after 26 generations. They still need to confirm that the bugs that are silenced are in fact less deadly. If so, the new antibiotics would leave bacteria alive, but they'd basically be POWs. With no way to escape.

—Karen Hopkin



March 20, 2009

Bird Controls Offspring's Gender

A report in the journal *Science* shows that at least one species of bird, the Gouldian finch, has the capacity to choose the sex of its offspring. Cynthia Graber reports

[The following is an exact transcript of this podcast.]

Some people are worried that the more we learn about genetics, the closer we'll get to a day when we can choose all sorts of characteristics for our babies: eye color, intelligence—and sex. Well, when it comes to sex, finches are a step ahead of us. Researchers in Australia show that female Gouldian finches can select the sex of their offspring. They published their research in the March 20th edition of the journal *Science*.

Gouldian finches have either red or black colorations on their heads. They choose their mate based on that head color. So researchers played a trick on the animals. They painted the heads of some red males black. Then they mated those seemingly black-headed birds with both red and black females. When the black females thought they were mating with a black male, they produced equal number of baby girl and boy birds.

But the red finch females who thought they were mating with an incompatible black-headed male had significantly more baby boys. Researchers say this is probably to reduce investment in what they call 'inviable females.' And they had fewer and smaller eggs. Truly a clutch performance.

—Cynthia Graber



March 23, 2009

Peers Know You Better Than You Do

A report in the journal *Science* finds that the behavior of members of your peer group predicts your behavior better than you could have. Adam Hinterthuer reports

[The following is an exact transcript of this podcast.]

Most of us follow the beat of our own drummer. But it turns out that members of our social networks are great predictors of how we'll respond to future events. In a study in the March 20th issue of the journal *Science*, researchers at Harvard had undergraduates go on five-minute speed dates. Some women read a brief bio of a guy and his tastes. Others were told how much a woman who had already speed-dated the guy enjoyed herself.

Before each date, the ladies had to predict if they'd have a good time. Most believed the bio would enable them to better gauge if they would like the date. But women who read about someone else's experience had half as many missed predictions as those trusting their own instincts.

The researchers say such "surrogate" information may be strong because we're more alike than we think. Even people of different cultures share similar likes and dislikes. Plus we tend to hang out with people who share our interests. So while we may be marching to our own beat, we're always part of a bigger band.

—Adam Hinterthuer



March 24, 2009

Dirty Little Rat Gives Cancer Clues

A study published in the online *FASEB Journal* notes that the oxygen requirements of tumor cells have a model in the needs of members of a strange social organism--the naked mole rat. Karen Hopkin reports

[The following is an exact transcript of this podcast.]

Understanding all the genes and molecules involved in human disease is quite a challenge. That's why scientists study model organisms, like flies and worms and mice, that are made of the same stuff we are. Now scientists in Illinois and Israel have found a strange new model that they say mimics the molecular behavior of human cancers: the naked mole rat.

These odd little creatures live in subterranean tunnels where air is at a premium. So the animals have evolved a strategy for surviving when oxygen is scarce. Well, the same is true of cancers. In a rapidly growing tumor, the cells in the center are often oxygen-deprived, because blood vessels don't reach all the way inside.

And the scientists are finding that mole rats and tumor cells use similar mechanisms to make the most of the little oxygen they have. In particular, the researchers have so far identified three genes that respond to plummeting oxygen levels. The genes' activity patterns are the same in mole rats and in cancer cells. Understanding how these genes work could suggest new ways of choking the life out of tumors, by turning off their ability to live like mole rats. Well, malignant mole rats.

—Karen Hopkin



March 25, 2009

Kids' Sweet Tooth Related to Growth

A study published in the journal *Physiology & Behavior* finds that kids with a sweet tooth may be craving sugar because it's powering ongoing growth and development. Karen Hopkin reports.

[The following is an exact transcript of this podcast.]

Generally speaking, kids do like their candy. Now scientists say that this sweet tooth may have some basis in biology. Because sugars may help fuel the rapid growth of childhood.

Stroll down the cereal aisle of your local supermarket, and you'll no doubt notice that children favor foods that are on the sweet side. But those cravings tend to wane as kids reach adolescence. To find out why, researchers took 143 children, ages 11 to 15, and assessed their preference for sweetness by having them "sip and spit" shots of sugar water. They then separated the kids into two groups, one with a high preference for sweets, and the other with a low preference.

What they found is that the kids who really like their sugar were growing faster than the kids who said that the syrup samples were just too sweet. The sugar fiends had higher blood concentrations of a biomarker associated with bone growth, findings that appear in the March 23rd issue of the journal *Physiology & Behavior*. And in case you were wondering, the drop-off in sugar-liking did not correlate with the onset of puberty. So it's really the tapering off of growth that makes kids decide that candy's no longer dandy.

—Karen Hopkin



March 26, 2009

Pharmed Fish

A study presented at an American Chemical Society meeting reveals that fish from sites in various parts of the country tested positive for drugs and personal care product chemicals that wind up in the water supply. Adam Hinterthuer reports

[The following is an exact transcript of this podcast.]

Eating fish can be good medicine. And, according to the U.S. EPA and researchers from Baylor University, fish all over the country are literally stuffed to the gills *with* medicine. The findings are part of a pilot study testing for pharmaceuticals and personal care products in our nation's waterways. The results were presented in a March 25th meeting of the American Chemical Society.

According to the report, fish contain a medicine cabinet's-worth of products—from antihistamines to antidepressants and, discovered for the first time in fish, a popular cholesterol medication. In all, 24 pharmaceuticals and 12 cosmetic chemicals were tested for in fish from rivers near Phoenix, Dallas, Chicago, Orlando and West Chester, Pennsylvania. While the amount and type of drugs varied, chemical residue from seven pharmaceuticals and two kinds of personal care products was found in all five sites. In contrast, not a single fish in the control site of New Mexico's Gila River Wilderness Area tested positive.

The researchers say little is known about what such drug cocktails mean for the health of fish, not to mention the people who eat them. But it sure makes catch and release sound like the way to go.

—Adam Hinterthuer



March 27, 2009

Getting into School in a Snap

A study in the journal *Science* finds that millions of herring can form a cohesive school, or shoal, in just seconds, quickly turning chaos into order. Karen Hopkin reports

[The following is an exact transcript of this podcast.]

If you've ever popped open a jar of the pickled fish, you know that herring like to stick together. Actually, it's something they do naturally, even before they're crammed into a container. In the ocean, millions of herring often band together in shoals that can stretch for miles. Now scientists say that herring shoals can form in seconds, as long as you have the right number of fish.

The scientists used a souped-up kind of acoustic sensing that allowed them to image an area 100 kilometers in diameter about once a minute. Because sound waves get bounced off the bodies of the fishes, the researchers could count how many herring were around, and see exactly when they coalesced into a shoal.

They found that herring start to shoal around sunset, gathering together when the fading light makes it safer for them to rise from the seabed. Then, once the fish reach the critical density, they rapidly come together into one big happy mass o' fish, results published in the March 27th issue of the journal *Science*.

Shoaling allows the fish to engage in bouts of synchronized spawning, and helps to protect them from predators. Because there's safety in numbers. Especially when you're all packed together like sardines.

—Karen Hopkin



March 30, 2009

Shoot a Space Invader to Drive at Night

A study in the journal *Nature Neuroscience* suggests that playing action-filled video games improves contrast vision, especially useful in low visibility conditions. Karen Hopkin reports

[The following is an exact transcript of this podcast.]

In 2005, Steven Johnson wrote a book called *Everything Bad is Good For You*. He proposed that popular culture is actually making us smarter. Because things like video games have gotten so complex, they force us to keep our brains in gear.

Well, you can argue with his ideas about pop culture and intelligence—many people have. But now a new study, published in *Nature Neuroscience*, suggests that video gaming can improve not your IQ, but your eyesight.

The researchers studied people who are expert video gamers, players who log more than 5 hours of action games a week. And they discovered that these experts have better contrast vision than non-gamers. Such contrast sensitivity comes in handy in real life for driving at night or in poor visibility. And it's that aspect of vision that's one of the first to go as we age.

The scientists also found that for non-gamers, a daily workout on the computer boosted their contrast vision, an improvement that then lasted for months. Playing nonaction video games didn't help. It was engaging in those action-filled death matches that did the trick. So, sure, keep munching those carrots. But maybe shoot down a few enemy spacecraft before you drive in the dark.

—Karen Hopkin



March 31, 2009

House Call for Gorilla

After suffering a seizure, a Bronx Zoo gorilla got a special house call--a mobile MRI unit came to him so vets could perform a brain scan. Steve Mirsky reports

How do you do a brain scan on a gorilla. Yeah, yeah, very carefully, right. He sleeps anywhere he wants to, too. But seriously, trying to do an MRI on a gorilla presents certain logistical problems. Back in the 1980s, when a gorilla at the Bronx Zoo needed to be scanned, zoo staff working with pathologists at Albert Einstein College of Medicine slipped the sedated primate into Montefiore Hospital in the dead of night. The only sign of anything unusual was a big hairy arm sticking out from under a sheet on a gurney.

Recently, another Bronx Zoo gorilla, named Fubo, needed some high-tech evaluation after he had a seizure. But now the MRI machine could come to him. The Brain Tumor Foundation sent its Bobby Murcer Mobile MRI Unit over to the zoo. Murcer was a New York Yankee outfielder and broadcaster whose life was cut short in 2008 by a brain tumor. Einstein physicians again worked with zoo vets to diagnose the problem. Which appears to be a lesion in Fubo's left temporal lobe. He's being treated—but won't be released! To see images of the procedure, check out the slide show on our Web site, www.SciAm.com

—Steve Mirsky