RESEARCHER FINDS GENETIC LINK TO COUCH POTATO-ITIS IN RATS, MAYBE HUMANS

COLUMBIA, Mo. — A Mizzou researcher has found genes that may predispose laziness in rats. The findings may translate to humans.

Frank Booth, professor with the College of Veterinary Medicine, said, “We have shown that it is possible to be genetically predisposed to being lazy,” Booth said. “This could be an important step in identifying additional causes for obesity in humans, especially considering dramatic increases in childhood obesity in the United States.”

Booth’s team was able to breed rats that exhibited traits of either extreme activity or extreme laziness. They wrote in an academic paper that these rats indicate that genetics could play a role in exercise motivation, even in humans.

“It would be very useful to know if a person is genetically predisposed to having a lack of motivation to exercise, because that could potentially make them more likely to grow obese,” Booth said.

Studies show 80 to 97 percent of American adults get less than 30 minutes of exercise a day, which is the minimum recommended by federal guidelines.

Roberts’ team put rats in cages with running wheels and measured how much each rat willingly ran on its wheel over six days. They then bred the top 26 runners with each other and bred the 26 rats that ran the least with each other.

They repeated this process through 10 generations and found that the line of running rats chose to run 10 times more than the line of “lazy” rats.

Once the researchers created their “super runner” and “couch potato” rats, they studied the levels of mitochondria in muscle cells, compared body composition and conducted genetic evaluations.

“While we found minor differences in the body composition and levels of mitochondria in muscle cells of the rats, the most important thing we identified were the genetic differences between the two lines of rats,” Roberts said. “Out of more than 17,000 different genes in one part of the brain, we identified 36 genes that may play a role in predisposition to physical activity motivation.”

The study is in the April 3 edition of the American Journal of Physiology: Regulatory, Integrative and Comparative Physiology.

The next step is to explore the effects genes have on motivation to exercise, the study says.
MU club explores creation of solid objects through 3-D printing technology
Tuesday, April 9, 2013 | 6:00 a.m. CDT; updated 7:18 a.m. CDT, Tuesday, April 9, 2013

Alex Madinger, president of MU 3-D Printing Club, holds a gear cube made by a 3-D printing machine. This cube, made of plastic and screws, is created using a digital formula along with printing software to produce a 3-D structure. † Allissa Fisher

BY Allissa Fisher, Lauren Hill

COLUMBIA — In a dimly lit basement room constructed of concrete walls and hard stone floors, creations are born.

Lafferre Hall is a place of magic, where a single idea can become a reality through 3-D printing.

3-D printing is the process of creating three-dimensional solid objects by “printing” layers of heated plastic on top of each other, layer by layer. Mechanical engineers, biomechanical engineers, designers, architects and artists throughout the world use this process to create prototypes, designs and solid models. Students are exploring and learning about this process at MU through the 3-D Printing Club.

The 3-D Printing Club was founded in October by seniors Alex Madinger and Derek Provance. They saw a number of people interested in 3-D printing but no community for them to grow and learn, Madinger said. More than 100 people attended the first meeting in November.
Madinger recounted that he had nowhere to nurture his passion for 3-D printing before the club's formation.

"When I began I was adrift and felt on my own," Madinger said. "We want to empower students to investigate 3-D printing further if they want to."

The club meets every first and third Thursday of the month. The meeting agendas vary. The club could have a demonstration on a new technique, hold elections for officers or video chat with speakers from around the world. Throughout the year, the club holds seminars to further the education of their members. Seminars include 3-D Printing Club 101 to teach the basics of 3-D printing and computer aided design to teach programs used to make models for printing.

Madinger, a mechanical engineering student and president of the 3-D Printing Club, and Provance, a computer science student and vice president of the club, started building 3-D printers during the summer out of parts ordered online. They assembled the printers using blueprints and instructions also found on the Internet. The plastic that is used by the club is the same plastic used to make Legos. The students either create their own designs to print or they find images on the Internet and print off the models.

The club encourages students from all majors and areas of interest to join. The first member to join was a communications major.

Columbia's Modern Meadow, 1601 S. Providence Road, is using this process to print leather and steak, as in meat, Provance said. Just like in regular 3-D printing, the printer goes layer by layer to create the final product. Except this time, the substances used are the cells of the meat along with a bonding agent. The cells fuse together to create the final product.

Provance said he hopes that this technology will carry the world into a brighter future by feeding the less fortunate in foreign countries.
MU researcher leads cancer research with new treatment

MU researchers developed a cancer treatment that could place scientists a step closer to curing the serious disease.

The breakthrough treatment was developed by a team of 30 researchers, led by M. Frederick Hawthorne, a Curators' Distinguished Professor of chemistry and radiology. The treatment put cancer into remission in mice and has produced none of the harmful side effects of conventional chemotherapy and radiation treatments thus far.

Hawthorne, who was awarded the National Medal of Science in February by President Barack Obama, led the team in developing the Boron Neutron Capture Theory of cancer.

The treatment uses BNCT to make cancer cells absorb an atom consisting of a boron chemical designed by Hawthorne. Once exposed to neutrons, the boron atom shatters and destroys the cancer cells while sparing healthy cells.

Hawthorne said the treatment is unusual because it combines both a chemical drug and mild form of radiation.

“Radiation is rough,” he said. “I know because I’ve done it.”

It would usually take about 35 radiation sessions to have a chance of successfully treating the patient’s cancer, Hawthorne said. With BNCT, it will only take two or three sessions.

“It is 10 times milder, and you don’t suffer,” Hawthorne said.

Hawthorne and his team have successfully cleared the first step of creating a treatment to cure cancer: giving mice their walking papers.

“The first step is discovery,” Hawthorne said. “We use a small animal like a mouse to develop the drug.”

Hawthorne said the first step of testing helped the lab discover how much of the treatment to give and when to give it. The cancer-bearing mice given the treatment are now recovering.

“It’s a great big step,” Hawthorne said.

The next step will involve treating dogs with spontaneous cancer. In these cases, the lab does not give the dogs cancer, but brings in dogs that already have the disease to use as test patients.

The last and final step involves treating people with cancer. The lab would set up a clinical trial, in which cancer patients can choose whether or not to participate.
“Each step is encountered in order, and we must pass each stopping point,” Hawthorne said.

Hawthorne said that to move from treating mice to treating humans, there is a time period of anywhere from three to five or six years.

“We’re in good shape on mice, and we’ll be treating dogs this coming year,” Hawthorne said. “As we’re treating dogs, we’re getting ready to treat people. We’re not wasting time.”

Hawthorne has been working on this project for the better part of 50 years.

“I’ve been working on it since 1956,” Hawthorne said. “I’ve been trying to find the chemistry that works. And I finally did.”

Hawthorne is the director of MU’s International Institute of Nano and Molecular Medicine, where the team developed the treatment. The institute, referred to as FNM², is a campus research center dedicated to the discovery and application of translational medical science, which combines chemistry, nanotechnology and the biosciences, according to its website.

“It’s really a team effort,” said Satish Jalisatgi, assistant director at MU’s International Institute of Nano and Molecular Medicine and research assistant professor of radiology. “We have a nuclear scientist, a chemist and a radiation oncologist helping. All three are needed for us to have substance in BNCT.”

Jalisatgi said the main limitation of BNCT in the past has been a lack of a good boron-targeting agent.

“MU is at the forefront of that effort,” Jalisatgi said. “We think ours is extremely promising. It’s the first chance at making BNCT work.”

Jalisatgi said the whole lab is pleased with the success and can’t wait to move forward.

“We’re coming along as quickly as we can,” Hawthorne said. “It will be a while, but it’ll happen.”

Freshman biology major Thalia Sass said she is excited to watch the lab’s progress treating larger organisms.

“I think it’s amazing that we have such progressive research in our own backyard,” Sass said. “Everything that he’s doing is groundbreaking and such an amazing credential for Mizzou.”
JEFFERSON CITY — Republican leaders of the Missouri House enjoyed a pair of dinners at an expensive Columbia steakhouse in February, racking up a combined tab of $3,500 picked up by lobbyists for Ameren Missouri and the Missouri One Call System.

But the disclosure reports the lobbyists must file with the state made no mention of which lawmakers dined and passed the check.

Instead, the gifts were reported as going to the “Leadership for Missouri Issue Development” committee, a new type of legislative group that, among other things, creates another hurdle to pinpointing the beneficiaries of lobbyist expense accounts.

Speaker Tim Jones and Majority Leader John Diehl belong to the committee, for instance, but records don’t reveal whether the utility industry paid for their chow.

An examination by The Kansas City Star of a decade of public records shows lobbyists spend nearly $1 million a year in Missouri lavishing gifts on the people who set and carry out government policy. In January alone, the amount of gifts totaled more than $165,000.

And while defenders of the system say the practice is transparent and open for all to see, when gifts are given to groups instead of individuals it can be difficult — and in some cases impossible — to tell who is getting goodies from whom.

Take, for example, the roughly $8,200 spent by a handful of lobbyists to treat lawmakers to meals last July in Salt Lake City at the convention of the American Legislative Exchange Council, a conservative organization that has drawn criticism in recent years for its efforts to bring together corporations and lawmakers to craft bills for introduction in legislatures nationwide.

Which lawmakers made the trip to Utah and attended those get-togethers was not disclosed. Each of the lobbyists reported the gifts as going to the “entire General Assembly.”

Critics argue that the massive amount of gifts, and the problems with transparency, demonstrate a need for reform.
“Our system is, if not the most broken in the country, at least one of the worst,” said Secretary of State Jason Kander, who previously served six years in the Missouri House representing Kansas City.

Most legislative leaders say there is no need to ban lobbyists’ gifts or even impose a limit. It is enough, they say, that lobbyists must publicly disclose what they spend and on whom they spend it. Gifts and meals provided by lobbyists are reported monthly to the state’s Ethics Commission. Those reports are made public on the commission’s website the following month.

“I didn’t believe it until I got down here, but these things have no impact whatsoever on how people vote,” said Assistant House Majority Leader Mike Cierpiot, a Lee’s Summit Republican. “As long as the public knows where the money is coming from, I think the system is working.”

Even critics concede that it is difficult to connect a lobbyist’s spending with a specific outcome in the legislature, such as a bill being passed or another being killed. But, they counter, lobbyists aren’t giving lawmakers tickets to the ball game or lavish dinners out of the kindness of their hearts.

“It’s silly to assume that this money is being spent out of charity,” said Sean Soendker Nicholson, the executive director of Progress Missouri, a liberal advocacy group. “It’s about advancing the priorities of the lobbyist’s clients, and it is a system that tilts toward people with very large checkbooks and large expense accounts.”

Meals make up the largest chunk of gifts, with hearing rooms, legislative offices and the Capitol Rotunda all regularly featuring free food provided by lobbyists.

For example, over the course of last year, a lobbyist for the Missouri Insurance Coalition spent nearly $4,000 on fruit and pastries for the offices of Republican leaders.

The gifts also extend after hours, and are divvied out in a bipartisan fashion. A lobbyist spent $1,100 in November on tickets to a Lady Gaga concert for the staffs and families of two Democratic legislators. Laclede Gas Co. spent nearly $700 for various legislators to attend World Wrestling Entertainment events in St. Louis.

The newest wrinkle in the system was created when the 2013 session convened in January. House Republicans changed the rules of the chamber to allow for lawmakers to form a new type of legislative committee aimed at “issues development.” The change was decried by Democrats, who complained that it was an attempt to make it easier to hide lobbyist gifts.

The “Leadership for Missouri Issue Development” committee, comprising nine members of Republican House leadership, is one of these new committees, and it is the only one to report any lobbyist gifts thus far.

Cierpiot, who is listed as vice chairman of the committee, said it is designed simply to allow legislators with common interests to “get together and fact find.”
“This is not hiding anything,” he said. “Every meal or gift is disclosed.”

But making it difficult to find out who is attending these events hides the actual value of the gift, said Progress Missouri’s Nicholson. If only two lawmakers attend a dinner that cost $800, “that’s a lot different than if 50 show up.”

Missouri’s system of no limits on lobbyist gifts stands out from many of its neighbors. Iowa employs what’s referred to as the “cup of coffee” policy, which says no group can give a single legislator a gift worth more than $3.

Kansas has had gift limits on the books since the 1970s, said Carol Williams, the executive director of Kansas Governmental Ethics Commission. Lawmakers are prohibited from receiving more than $40 worth of gifts from a single entity — regardless of how many lobbyists that entity employs — in a single year. There is also a $100 annual cap on recreational activities, such as golf outings. There are no limits on purchasing meals, but the buyer must be present when the lawmaker receives the meal and can’t report the gift as going to a group, Williams said.

“Over the years, we’ve had lobbyists come to us and say they’re glad they are in place,” Williams said.

While most lobbyists in Missouri are hesitant to criticize the current system, many privately admit that capping gifts or banning them outright would make their lives easier.

Even so, there is a good purpose for many of the gifts, said Steve Knorr, a lobbyist for the University of Missouri who fields requests for one of the most frequent items that shows up on disclosure reports: Missouri Tigers basketball tickets.

Many lawmakers have never set foot on Missouri’s Columbia campus before, Knorr said. Sports tickets are a good way to get those people to visit, he said, and give the school the chance to interact with lawmakers.

“For them to come and see what a major research institution like Missouri is all about,” Knorr said, “I don’t think that’s a bad thing.”

If someone’s vote can be purchased with a sports ticket or a meal, they have no business being in the General Assembly, Cierpiot said.

Besides, he said, if food wasn’t provided many lawmakers would simply not have time to eat.

“Most people don’t realize that we are running around so much, a lot of days we simply don’t have time to leave the Capitol,” he said. “That’s just the life of this place.”

Nicholson said that argument doesn’t hold water.
“For everyone else in Missouri, if you don’t have the money or time to buy lunch, you bring a bologna sandwich,” he said. “Everyone else in the world seems to somehow manage without free food and booze provided to them a couple times a day.”

So far, lawmakers have been reluctant to make any changes to the system.

Rep. Kevin McManus, a Kansas City Democrat, has sponsored legislation to, among other things, cap the amount of gifts lawmakers can receive at $1,000 a year. An outright ban on lobbyist gifts has been introduced in the Senate by St. Louis Democrat Scott Sifton.

Neither bill has received a hearing.

House Speaker Tim Jones, a Eureka Republican, said lawmakers are focused on other issues this session that “impact Missourians more than an inside the Beltway ethics discussion.”

When he became secretary of state in January, Kander adopted a new ethics policy barring the staff in his office from accepting gifts from lobbyists. During his tenure in the legislature, he declined most lobbyist gifts and reimbursed lobbyists for any gifts he did receive.

The only way any ethics reform will ever clear the legislature, Kander said, is if the public demands it.

“There’s no interest group called ‘Big Ethics’ that is going to force lawmakers to police themselves,” he said. “So it really does have to be a people powered movement.”
COLUMBIA AIRLINE GUARANTEE FUND MAKES FIRST PAYOUT

The city of Columbia paid $22,562 to American Airlines after the airline’s first two weeks at Columbia Regional Airport as part of an arrangement that guaranteed the airline revenue when it agreed to start service there.

The payout was expected as the airline adjusts to its new market and because heavy snow hit the city on Feb. 21 and 26, said John Blattel, director of the city’s Finance Department. The airline began service in Columbia on Feb. 14.

A two-year, $3 million revenue fund was set up to persuade American to provide service from Columbia to Chicago O’Hare International Airport and Dallas/Forth Worth International Airport, The Columbia Daily Tribune (http://bit.ly/14Z9zDB).

The fund includes $1.8 million from Columbia, $600,000 of which came from private investors, Boone County and the University of Missouri each contributed $500,000, and Jefferson City and Cole County each gave $100,000.

The city pays American when flights on its 50-seat American Eagle commuter jets have fewer than 32 seats filled. American is guaranteed to make at least $5,012 on each flight to Dallas and $4,403 on each trip to Chicago.

In the first two weeks of service, only three flights had fewer than 30 passengers, Blattel said.

Blattel said the city also pays a fuel adjustment charge when the price of jet fuel exceeds $3.30 per gallon, but he said that made up a “very small” part of the payment to American.
American Airlines receives more than $22,000 in revenue guarantee
Monday, April 8, 2013 | 7:21 p.m. CDT; updated 10:49 p.m. CDT, Monday, April 8, 2013

By Bailey Otto

COLUMBIA — American Airlines cashed in on $22,562 of its revenue guarantee during its first two weeks as an airline carrier at Columbia Regional Airport.

American Airlines offers two flights to and from Dallas and one flight to and from Chicago daily. It gets reimbursed from the revenue guarantee fund if Chicago flights fail to bring in at least $4,403 per flight or if Dallas flights fail to produce revenue of at least $5,012 per flight.

The agreement between American and the city caps the revenue guarantee at $3 million over the next two years, or a maximum of $1.5 million each year.

“(The fund) is just to get the airline here and to guarantee the citizens will use it,” city Finance Director John Blattel said, adding that the amount paid from the fund was larger because of low passenger numbers during heavy snow in February.

American Airlines debuted its flights from Columbia on Feb. 14. During the two-week period, 84 percent of the flights seats were sold.

“It did exceed expectations,” Blattel said. “We’re very, very happy with that number. We believe it will continue to go up.” He said the bookings are strong, with few seats left on many flights.

The city paid $1.2 million into the fund, while members of the Columbia Chamber of Commerce chipped in $600,000, MU and Boone County contributed $500,000 each, while Jefferson City and Cole County added $100,000 each.

If payments from the fund were to continue at the rate of the first two weeks, American Airlines would collect a total of about $1.17 million over the two-year contract.

“We believe that we’ll only be paying this revenue guarantee for about a three-month period,” Blattel said. He predicted the flights will become even more popular as people become more familiar with the service.

Blattel said American Airlines could raise its fares at any time, and it would only take a small increase in ticket prices to avoid tapping the guarantee fund.
St. Louis' and Columbia's flight fares to Dallas and Chicago are comparable. Fare prices for Tuesday flights were listed on American's website as:

- Round trip between Chicago and Columbia: $316 to $404
- Round trip between Chicago and St. Louis: $284 to $372.
- Round trip between Dallas and Columbia: $580 to $668.
- Round trip between Dallas and St. Louis: $544 to $632.

Michael Detrick, the vice president and managing director at Adelman Travel Group, which has an office in Columbia, said it's difficult to assess how competitive American's rates at Columbia Regional Airport might be, given that airline markets are so different.
MU to host festival for Thai New Year

The University of Missouri Thai Student Association, along with the Thai community in Columbia, will be hosting the eighth annual Grand Songkran Festival this week.

The festival is traditionally known as the Thai New Year or water festival and will be held at the Mel Carnahan Quad on the MU campus from 11 a.m. to 3 p.m. Thursday. In case of rain, the festival will be moved to Stotler Lounge in Memorial Union.

At 11 a.m., Anne Deaton will give the opening remarks before joining other MU administrators and senior leaders of the Thai community for the bathing rite to show respect and give blessings. The festival will feature Thai musicians and authentic Thai cuisine.
Factory farms, alternatives focus of "CAFO — Far from the Farm"
Monday, April 8, 2013 | 8:53 p.m. CDT; updated 11:05 p.m. CDT, Monday, April 8, 2013

BY Meghan Eldridge

COLUMBIA — Rural farmers, health care professionals and environmentalists will converge in Columbia this week for a three-day symposium about factory farms and the role of corporate agriculture in Missouri.

The symposium, called “CAFO — Far from the Farm,” begins at 2 p.m. Tuesday at MU’s Ellis Auditorium and continues from 5:30 to 8 p.m. Wednesday at Ragtag Cinema and 6 to 8 p.m. Thursday at the Columbia Art League. It is free and open to the public.

One focus will be on concentrated animal feeding operations, or CAFOs, in the context of sustainable agriculture, environmental responsibility and related legislation.

“People are very concerned about CAFOs, factory farms, and that’s what this symposium is all about: finding a common ground in order to change the legislation that often favors corporate groups,” said Daria Kerridge, adjunct assistant professor in MU’s Peace Studies and Art departments. She is also the symposium organizer.

“It’s very important to support the rural community as they counter the large corporate interest,” Kerridge said. “The farmers need an economic basis to survive and thrive, and often when the CAFO moves in, ethics and economics disappear.”

The event will feature panel discussions by speakers from around the country, including agricultural economists, authors and animal activists.

The following Q-and-A with three of the event’s speakers highlights some background for the symposium along with biographical sketches. The Q-and-A was conducted via email.

Gene Baur co-founded and serves as president of Farm Sanctuary, an organization that seeks “to protect farm animals from cruelty, inspire change in the way society views and treats farm animals, and promote compassionate vegan living,” according to the Farm Sanctuary website.

Q: What is a concentrated animal feeding operation, and why are they the subject of this symposium?

A: Factory farms are industrial animal production operations that treat animals and the natural world merely as commodities to be exploited. This attitude leads to many problems, which this symposium will help to address. Among the concerns are: the inhumane treatment of animals,
the inefficient use of increasingly scarce natural resources, the destruction and pollution of our environment and rural communities, the loss of biodiversity and the development of new pathogens that threaten humans and other animals.

Q: What, if anything, has changed in recent years with how these enterprises are operated?

A: CAFOs have continued to operate in cruel and irresponsible ways, pushing smaller farms out of business, and wielding undue influence in Washington, D.C., and in state legislatures and to secure policies that enable their harmful activities. Alarmingly, this method of food production is now being promoted in other countries, such as China, where meat consumption is increasing. The good news is that there is growing awareness and opposition to factory farming in the U.S., where meat consumption is beginning to decline for the first time in recorded history. The U.S. is in the midst of a sustainable food movement with the growth of farmers markets, community supported agriculture programs, community gardens and other mechanisms that help bring consumers more into contact with the source of their food. I hope that this food movement, and the increased transparency it brings, will help put an end to the expansion and influence of CAFOs.

Registered dietician and writer Melinda Hemmelgarn is the host of “Food Sleuth,” a program aired on KOPN/89.5 FM radio station. She works to educate the public about the importance of connecting food, health and agriculture.

Q: What are some of the issues you believe the public needs to know about surrounding the use of factory farms? Environmental issues? Economic concerns?

A: All of the above, and in fact, they are all related. (If we pollute our water and harm our health, our economy suffers, for example). However one of the most critical public health — and economic — issues facing our society today is the loss of antibiotic effectiveness. When animals are raised in concentrated and stressful conditions, they are more susceptible to illness (just like people). Antibiotics are also given in low doses to promote feed efficiency. I hope no one would argue with the need to treat a sick animal, but better to prevent illness in the first place, and never use our precious antibiotics to promote faster weight gain or growth. Most dangerous is the use of antibiotics that are also used in the human population. Unfortunately, we’ve come to take antibiotics for granted, but the misuse of antibiotics that occurs largely in the livestock industry, is moving us towards a society that does not have functioning antibiotics.

The other issue that is critically important is the protection of our water quality. We are part of our ecosystem, and if we pollute/contaminate our water with excrement — occurring, for example, when manure spills into rivers and streams (often during floods and storms), then we can expect to see fish kills and a loss of our quality of life. For example, many of us like to canoe and swim in Missouri’s beautiful rivers and streams. So we want to keep them as clean as possible to protect not only public health, but also the personal joy we have in recreation – fishing, swimming, etc. If we poison our water, we poison ourselves.
Q: The rise of the local food movement is a topic that’s drawn a lot of attention in recent years from the public and local farmers. How have you seen that movement emerge, change and grow in recent years?

A: You can see the tremendous growth of farmers markets nationally. Why is this happening? People like to be able to shake the hand of the person who produces their food. Relationships are very important – something else we’ve taken for granted. I advise consumers to get to know farmers, visit farms and ask questions about farming practices to find those farmers who produce food best in line with their philosophy.

John Ikerd was appointed a professor emeritus of agricultural economics at MU in 2000. Since retiring from the university in 2000, Ikerd has continued to speak out and publish writings on sustainable agriculture and the economics of sustainability.

Q: What in your mind is a viable alternative to factory farms?

A: There are many viable alternatives to CAFOs: pastured and free-range poultry, grass-based beef and dairy, hoop-house and pastured hogs. All these are just as efficient as CAFOs, they are just more management intensive, meaning they require more thoughtful, caring farmers to produce a given amount of meat, milk or eggs.

Q: What, in your opinion, is a sustainable method of agriculture or food production for the state of Missouri?

A: Grass-based livestock operations are the most logical sustainable systems of livestock production in Missouri. Missouri has an ideal resource base for diversified farms and diversification is an essential principle of sustainable agriculture.

Supervising editor is John Schneller
As Cuts Take Effect, Unease Takes Hold in the Lab

By Don Troop

At the University of Kentucky College of Medicine, Michael B. Reid frets that a senior scientist might retire from research to work in patient care. At the University of California at Riverside, Frances M. Sladek fears she may have to lay off her longtime cell-biology lab assistant just three years shy of retirement, costing the woman a sizable chunk of her pension. At the University of North Carolina at Chapel Hill, Barbara Entwisle worries that a researcher might have to end her longitudinal study of a birth cohort of children, 10 years into the project.

Similar scenes are playing out at research universities across the United States as administrators and professors wonder which projects will be trimmed or eliminated by the mandatory federal budget cuts known as sequestration, which took effect on March 1. The National Institutes of Health is doing its best to minimize the pain of the $1.6-billion in cuts it must inflict on grant applicants this fiscal year, says Mr. Reid, chairman of physiology at Kentucky's medical college. As a participant on committees that help the NIH vet grant proposals, he is fluent in both sides of the process.

In past years, proposals scoring within the top 12 percent would have been sure winners. Now the guaranteed grant level might be as low as 5 percent, says Mr. Reid, who complains that there is little to no distinction among proposals that score in the single digits.

"This is no longer a peer-review process," he says. "It's becoming a lottery."

The winners of the scientific sweepstakes can continue doing research, often with less than their requested budgets. The unlucky must choose whether to try again or even consider looking for careers that are less of a gamble.

The cuts, Mr. Reid and others make clear, are only the latest in a string of budgetary blows to scientists and administrators who rely on federal research dollars to stock their labs and pay the graduate students and postdocs who operate them.
"The insecurity is a fundamental, pervasive, underlying stress on biomedical researchers," says Mr. Reid. "We are having constant, daily conversations about how to adjust our research, our faculty support, our graduate programs to respond to what we think is coming."

The NIH's budget peaked in 2003, and other than a brief boost from federal stimulus funds in 2009, it has been on a fairly steady downward slope ever since.

"We really have been flat-funded in terms of the NIH budget over the past four or five years," says Jay W. Fox, an associate dean of research at the University of Virginia School of Medicine.

Federal grant agencies further slowed the spigot last year in anticipation of the sequester, and academic-science organizations rallied to thwart the cuts. The Association of American Universities, the Association of Public and Land-Grant Universities, and the Science Coalition collaborated on a campaign called ScienceWorksForU.S. to highlight how federally backed, university-based science formed the backbone of the economic growth and health innovations that powered America's global dominance in the second half of the 20th century.

Scientists like Mr. Reid, of Kentucky, and Joseph M. DeSimone, of Chapel Hill, appeared in video editorials urging Congress to halt the looming sequester, which was designed to lop $85-billion from the federal budget in "meat cleaver" fashion, a process so ham-handed that its prospect would cause politicians of both parties to unite to oppose it.

But no deal was struck, March 1 came and went, and to no one's surprise, university research continued. "Everybody knew that nothing was going to happen instantaneously, because there's too much momentum in the system," says Thomas Baldwin, executive associate dean of the University of California at Riverside's College of Natural and Agricultural Science.

**Early Warnings**

Five weeks later, everyone has a few anecdotes that hint at what is to come. A tickle in the throat that develops into a persistent cough.

Mr. Baldwin, a protein chemist who will retire next year, describes a young neuroscientist, "an absolute star" who was supposed to have heard back on his grant application by April 1. He is an assistant professor, and if he doesn't receive a grant by next year, his chances for tenure will plummet.
Another colleague just got bad news about his grant application to the Department of Energy for a project that was supposed to start this month. He cannot support the graduate students and postdocs in his lab. "We're scrambling around right now trying to find the nickels and dimes just to keep everything together," he says.

Mr. DeSimone, at Chapel Hill, tells of a military grant his lab applied for in the area of chemical-biological defense that typically would have had a quick turnaround. But in the current climate, nothing is guaranteed. "I've been cautioning at faculty meetings that maybe we shouldn't accept so many graduate students as a department because of the pressure on getting grants," he says. "If we have a 10-percent cut in our grant, we need to be careful we don't get caught here."

Ms. Entwisle, North Carolina's vice chancellor for research, says principal investigators are bearing most of the pain: "The ones we're hearing from the most are people with new projects or competing continuations that are very, very well reviewed, in the top 10 percent, that have not been awarded their grants."

She hopes that passage of the continuing resolution in late March to finance the federal government's spending will lead grant agencies to make awards for projects like the $18.5-million longitudinal study that hangs in limbo. As of last week, however, no news.

Administrators at some institutions, like Mr. Fox at the University of Virginia, and William H. Farland, senior vice president for research at Colorado State University, say they are pursuing grants from private industry and foundations to replace diminished government support.

Mr. DeSimone anticipates a rise in talent raids from abroad. "There's a trend toward going after great researchers, no matter where they are in the world, to have satellite laboratories in places like Singapore and China," he says. "You're going to see some of the rainmaker faculty around the nation have opportunities to devote some of their time and energy to activities overseas. They'll relocate a portion of their lives over there."

**Credit-Raters Bullish**

Amid the uncertainty of the coming cuts, the credit-rating agency Moody's Investors Service issued a report last month asserting that the vast majority of American universities and nonprofit organizations would "face only minimal effects" from the 2013 budget cuts.
John Nelson, managing director of the health-care and higher-education rating teams at Moody’s, acknowledges that the report might not sit well with worried administrators and scientists at research universities.

"There are a lot of careers on the line, a lot of disappointed young researchers and older researchers who were used to certain success rates on their grants," he says. Federal budget pressures are hitting all sectors now, Mr. Nelson says, and higher education is not immune to them. Nonetheless, he says, universities remain a solid investment.

"We don't make any statement about whether the government policy on funding is a good idea," he says. "We're just saying that universities have a lot of adaptive abilities, and from the perspective of 'Are bondholders going to get their money back?', this is not a serious threat to them."

Stand-alone research institutes face the greatest risk from an across-the-board cut because they lack the revenue diversity of universities, which can draw on such sources as tuition and room-and-board fees, says Faiza Mawjee, the analyst who wrote the Moody's report.

Mr. DeSimone isn't buying that, not for research-dependent universities like his. "You've got to keep in mind that 35 percent of the federal R&D budget goes to 25 universities," he says. "Carolina's ninth on that list."

But M. Peter McPherson, president of the Association of Public and Land-Grant Universities, and Barry Toiv, spokesman for the Association of American Universities, agree, more or less, with the ratings agency's assessment.

"Moody's is looking at whether universities will pay back their bonds," Mr. McPherson says. "For purposes of the soundness of the individual institutions, Moody's is probably right."

He and Mr. Toiv worry about far more serious consequences if the long slide in federal research spending is not reversed. The AAU reported in 2011 that universities perform 31 percent of America's total research—basic and applied—and 56 percent of its basic research. Federal grants pay for about 60 percent of university research.

At the same time that the United States is reducing its research budget, Mr. McPherson says, countries like South Korea, China, and Singapore are sharply increasing theirs. "For us to cut back instead of continuing to grow will place us at a competitive disadvantage," he says. "The sequester is hurting universities some, ... and as time goes on it could hurt them a lot more. But perhaps most
pertinent of all, it is a risk for the country not to drive this basic research machine we have that has benefited us so much.”

Mr. Toiv expresses confidence in the suggestion of the Moody's report that universities will weather the cuts and continue to produce research, albeit less of it. What is noteworthy, he says, is what the report does not say, "To what degree will universities not be producing quite as many ideas and quite as many graduates to be the next generation of scientists?"

Correction (4/8/2013, 3:49 p.m.): This article originally misspelled the surname of a chemistry professor at the University of North Carolina at Chapel Hill. He is Joseph M. DeSimone, not DiSimone. The article has been updated to reflect this correction.
MU professor Jonathan Sperber appears on
The Daily Show with Jon Stewart

When MU Professor of History Jonathan Sperber told his class on April 1 that he would appear on The Daily Show with Jon Stewart, the students didn’t believe him.

“They thought it was an April Fool’s joke,” Sperber said.

It was no joke. The expert on European history appeared on the April 2 episode of Stewart’s satirical show to promote his novel “Karl Marx: A Nineteenth-Century Life.”

Sperber’s interest in Marx began while he was working on a book about the revolution of 1848 in western Germany, in which Marx played an important role.

“Many of the things I found out about Marx’s political activity then did not fit the usual picture of him in most biographies,” Sperber said. “So I decided that some day I would have to write my own.”

Sperber began teaching at MU in 1984 after receiving his doctorate degree from the University of Chicago, according to his profile on the MU Department of History website. Sperber’s teaching experience at MU helped him write about the intellectual figure.

“I have been teaching 19th century European and German history almost every single year since I started working at MU,” Sperber said. “It has given me lots of opportunities to think about the political and intellectual context of Marx’s life.”

Sperber said his previous experience with interviews helped prepare him for his appearance on The Daily Show.

“I have already given a number of interviews about the book – for podcasts of National Review Online and the New York Times, as well as broadcasts on Swiss and German radio,” Sperber said. “So I had already thought of what I wanted to say about the book and some good sound bites.”

He also received some additional advice from his literary agent, his book’s publishing company W.W. Norton and Company, Inc. and the MU News Bureau.

Once he arrived at the studio for The Daily Show, Sperber was sent to a special room to prepare and to meet Stewart in person.

“Meeting Jon Stewart was a great experience,” Sperber said. “In person, he is every bit as articulate, clever and witty as he is on camera. But he’s also very good at putting his guests at ease and getting them to talk.”
Before he went on stage, Sperber got advice about being on camera from Stewart's assistant, got made up and got the microphone put on. After a sound check, Sperber made his way to the edge of the stage and was sent out at precisely the right moment.

“The whole experience brought to mind the enormous amount of preparation needed before people get to be in front of the camera,” Sperber said. “It may all look spontaneous, but that impression belies all the work done to get everything right.”

During The Daily Show, Stewart and Sperber talked about Marx’s life and writing style.

“He would sit a table, he’d ponder, he’d write something, he’d walk around the table, around and around, then he’d sit down again, write something and then walk around and around,” Sperber said on the show.

Sperber also said Marx was a procrastinator, to which Stewart responded with a joke.

“He is much like the college students who love him,” Stewart said for a large laugh from the audience. “They see that guy and go, ‘That’s what I do. I stay up 48 hours straight, then I collapse and I don’t do anything for two weeks.’”

The professor mentioned another similarity the German philosopher shared with college students.

“He drank like a lot of college students, too,” Sperber said.

Overall, Sperber said his experience on The Daily Show was an enjoyable one.

“I think The Daily Show works so well because it combines a very talented host with an excellent supporting staff,” Sperber said.
Abortion analogies

By Don Shrubshell

University of Missouri student Liz Rocco walks past an anti-abortion display on Monday at Lowry Mall on the University of Missouri campus. The traveling photo-mural exhibit, called the Genocide Awareness Project, visits university campuses across the country and compares abortion to genocide. It was sponsored by Students for Life of the University of Missouri and the Center for Bio-Ethical Reform. The display also will be set up tomorrow.
Anti-abortion group displays graphic images on Lowry Mall

Boldfaced signs reading “Genocide Awareness Project” and “Warning Genocide Photos Ahead,” lined the entrances to Lowry Mall on Monday.

The signs were placed to warn passersby of the graphic photo display in the center of the pedestrian thoroughfare. The images, sponsored by The Center for Bio-Ethical Reform, are a part of its Genocide Awareness Project, which aims to use graphic images to deter woman from getting abortions.

Mizzou Students for Life reserved the space on Lowry Mall to allow the Center for Bio-Ethical Reform to bring its display to campus.

The CBR’s posters placed images of aborted fetuses next to images of acts of genocide including the Holocaust, the Cambodian Killing Fields and the Rwandan genocide. Other posters compared abortion to child abuse, lynching and animal testing.

“One of the ways we teach (about abortion) is with this Genocide Awareness Project because, sadly, human history, and the last century, has unlimited examples to cite,” CBR Regional Coordinator Bill Calvin said. “In many cases, the powerful forces, whoever they are, deny the personhood of whatever group they want to take something from.”

Calvin said he believes the logic Nazis used to persecute Jewish people is the same logic people use today to justify abortions. He said Nazis declared Jewish people to be parasites, and he said students he spoke to at the display similarly called unborn fetuses parasites to justify abortions.

Some students expressed their concerns about the graphic nature of the photographs.

“There are 30,000-plus students on this campus,” graduate student Jessica Berry said. “You have no idea who’s affected by this. To put this on blast and have everyone see that without any kind of warning is (not) thoughtful.”

Calvin said he encountered both students who were supportive of and students who were against the displays. He said that, while it may upset some people, the intent is to save the lives of the fetuses.

Mizzou Students for Life president Reagan Nielsen said she founded the organization last March. The group brought the project to campus last year as well.

“This display really brings conversation on the campus about abortion,” Nielsen said. “Often times, people are hush-hush about it. They don’t want to talk about it. This creates a conversation... hopefully these images strike home and cause people to think about abortion.”
Student organizations requesting the use of university facilities must be recognized by Student Life and be in good standing as per the Organization Resource Group website, according to the Administrative Services website.

John Murray, Assistant Director of Business Services, and Mary Maxwell, Administrative Assistant of Business Services, then review the requests.

“We don't really concern ourselves in content as far as requests," Murray said in an email. “As long as the request is in compliance with policy, we generally approve it.”

Feminist Student Union members quickly organized the morning of the display and peacefully protested the display with Planned Parenthood signs, while collecting signatures and emails of students who support relocating the event to Speakers Circle in the future.

“I find it incredibly offensive to compare a woman's choice about her health and her body to mass genocide and evil going on in the world,” FSU President Nicole Silvestri. “I just think it's completely absurd and an unfair comparison.”

Several students wore clothes to emulate Pussy Riot, a Russian feminist punk-rock collective and show their disapproval of the display.

“Pussy Riot is a punk collective of women in Russia who assemble spontaneously when problematic situations arise, and they dress in bright colors and they wear balaclavas to mask their faces and cover their identities,” junior Kat Seal said. “They do this to have their presence and their voices heard in situations when they feel that women as a whole are being oppressed.”

Calvin said the intent of the display was not to change laws but to change the minds of individuals.

“We don’t have a political agenda,” he said. “We’re not trying to elect a candidate in Missouri or change the laws in Missouri. We want to make individual people recognize what we believe, that abortion is unthinkable. It's so horrible, if you really understand it.”

Some students were upset with the comparison of abortion to the Holocaust because the demonstration fell on Holocaust Remembrance Day.

“I don’t see how abortion and genocide go hand in hand," Berry said. “I don’t see how they thought this was okay to do this on national Holocaust Remembrance Day. This was supposed to be a day about them.”

However, Nielsen said it was unplanned for the day to coincide with the presentation — it was just the date that worked best.

Mizzou Hillel, the organization for Jewish students, sent an email offering support to students offended by the exhibit.

“We understand that this exhibit has the ability to evoke painful memories for students and faculty on campus,” the email said. “Hillel's doors are always open, and we are here for support should anyone wish to discuss the issue.”