



MU News Bureau

Daily Clips Packet

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(AAU science news website; more than 1.9 million unique viewers per month)

To study T. rex's bite, make fake alligator skulls

Posted by [Jeff Sossamon-U. Missouri](#) June 19th, 2017

Generated from News Bureau press release: [Building a Better Alligator: Researchers Develop Advanced Three-Dimensional Models of Bite Data to Study Dinosaurs, Birds, Crocodiles](#)

3D models of the American alligator skull will assist scientists who study extinct species, including dinosaurs, and other animals.

The skulls of alligators protect their brains, eyes, and sense organs while producing some of the most powerful bite forces in the animal kingdom. The ability to bite hard is critical for crocodylians to eat their food such as turtles, wildebeest, and other large prey.

“Collecting bite data from live animals like alligators can be pretty dangerous and potentially deadly, so accurate 3D models are the best way for biomechanists, veterinarians, and paleontologists interested in the function and evolution of these amazing animals to study them,” says Casey M. Holliday, associate professor of pathology and anatomical sciences in the University of Missouri School of Medicine.

“It is impossible to analyze the bite forces in extinct hard-biting species like the giant Cretaceous crocodile *Deinosuchus*, or the famous bone-crunching dinosaur *Tyrannosaurus rex*, so precise models are imperative when studying extinct species,” he says.

The team’s approach was to first report naturalistic, three-dimensional computational modeling of the jaw muscles that produce forces within the alligator skulls to better understand how bite forces change during growth. Then, they compared their findings to previously reported bite forces collected from live alligators.

“Because alligators and crocodilians have had such extreme feeding performance for millions of years, they have been a popular topic of study for paleontologists and biologists,” says Kaleb Sellers, a doctoral student in Holliday’s lab.

“Our models stand out because we’re the first to distribute loads of their huge muscles across their attachment surfaces on the alligator skull. This lets us better understand how muscle forces and bite forces impact the skull,” Sellers says.

These new methods and findings pave the way to better understanding the 3D biomechanical environment, development, and evolution of the skull of not only alligators, but other crocodilians, birds, dinosaurs, and other vertebrates, Holliday says.

The researchers validated their simulations using previously reported bite-force data.

The study appears in the *Journal of Experimental Biology*. Additional coauthors on the study are from the University of Missouri and the University of Southern Indiana.

The University of Missouri Research Board, Missouri Research Council, the National Science Foundation, and the department of pathology and anatomical sciences supported the work. The content is solely the responsibility of the authors and does not necessarily represent the official views of the funding agency.

The logo for WebMD, featuring the word "Web" in a blue, sans-serif font and "MD" in a larger, bold, black, sans-serif font.The logo for HealthDay, featuring the word "Health" in a blue, sans-serif font, "Day" in a larger, bold, blue, sans-serif font, and "News for Healthier Living" in a smaller, black, sans-serif font below it. A yellow sunburst graphic is positioned behind the word "Day".

Health Day is a national new service, producing health content for more than 40 media companies. WebMD is a digital health news site with more than 64.5 million unique visitors per month.

Happy Marriage, Healthier Spouses

Generated from News Bureau press release: [Happily Married Couples Consider Themselves Healthier, Says MU Expert](#)

Watch the story: <http://mms.tveyes.com/PlaybackPortal.aspx?SavedEditID=07b1daa0-490c-47da-bd33-39ddc045fb87>

By Joan McClusky *HealthDay Reporter*

FRIDAY, June 16, 2017 (HealthDay News) -- **Is a happy marriage the key to good health? Yes, according to researchers at the University of Missouri.**

Overall, married people are in better mental and physical health than their unmarried -- divorced or widowed -- peers.

The study, which followed 700 couples over 20 years, found that each partner's health can be affected by both positive and negative interactions at all stages of marriage. The researchers reported that people who have happy marriages are more likely to give their health a higher rating as they age.

The health benefits may be strong enough that working on your marriage can improve your health throughout your years as a couple. Engaging your partner can lift your spirits and wellbeing, while lowering your stress level.

On the flip side, aging adults whose physical health is on the decline could benefit from improving their marriage, the researchers said. If you have a chronic health condition, your marital relationship can be an important part of your treatment plan. And understanding a partner's health issues and how to manage them at home can improve the health of both partners. This is especially important as you grow old together.

The takeaway? The health of both partners can get a positive boost by treating each other with greater care. Pay more attention to your spouse and nurture your marriage to keep it a happy one. And realize that when thinking about your health, the state of your marriage is a factor, perhaps on a par with diet, exercise, and other key lifestyle habits.

Similar stories ran on more than 15 television national broadcasts.

T COLUMBIA DAILY TRIBUNE

Land for middle school part of site used for radioactive research

By Megan Favignano

Columbia Public Schools is planning a new middle school for a piece of property in south Columbia that is part of Sinclair Farm, a site previously used for research involving low levels of radioactive materials.

The 63-acre tract planned for the new school is part of a 535-acre property known as Sinclair Farm. **An 8-acre plot of the farm is not for sale as the University of Missouri used 2 acres of it as a burial site for low-level radioactive waste in the 1970s.**

Christian Basi, MU spokesman, said the property has not been used recently. He said that several years ago the university leased some of the Sinclair Road property to a third-party business that conducted scientific research.

MU started the Sinclair Research Center in 1965 but it became a private firm in 1994. Liquid radioactive waste from MU research was placed into a pit and burned on the 2-acre plot from 1972 to 1981.

The Nuclear Regulatory Commission, the watchdog agency that works to protect health and safety related to nuclear energy, deemed the land that is for sale as “available for non-restricted use.”

According to the NRC, natural radiation which is always present is called “background radiation.” Levels of background radiation can vary significantly depending on location. Colorado had more cosmic radiation than the East or West Coast because of its altitude.

On average, each U.S. resident receives about 310 millirem of radiation exposure from natural sources each year.

Chase Environmental Group, a radiological waste management and remediation services company based in Louisville, Ky., in 2014 sampled tract 3 and found “the potential dose to a member of the public from radioactivity at the site is less than 0.15 mrem/yr,” the company said in a letter to the UM System’s real estate coordinator earlier this year.

The letter stated that two buildings located on tract 3 burned in 2011, with the floor slabs and foundations still visible on the site. The buildings previously were used for activities involving radioactive materials as tracers in research. Radioactive tracers contain a radioactive atom to allow easier detection and measurement.

The Columbia Board of Education approved the land purchase agreement last week, agreeing to pay about \$2.9 million for 63 acres. The district is planning to open a new middle school by 2020 to relieve overcrowding at Gentry Middle School.

During last week’s Board of Education meeting, Columbia Public Schools Chief Financial Officer Linda Quinley said the property’s location is in a location where the district is seeing growth.

“It’s a very competitive price for a large lot that sits where we need it,” she said last week.

Sinclair Farm is along Sinclair Road, just south of Nifong Boulevard. Maly Realty, which is managing the sale of the Sinclair Farm site, documents show an anticipated household growth of about 4 percent within one mile of the property and about 7 percent within three miles of the property.

The realtor’s documents also show a projected population increase of about 3,000 within three miles.

Boone County Assessor Tom Schauwecker said the property is exempt from taxation because it is owned by the university, meaning an assessed valuation is not available. Missouri's constitution mandates that a property tax on agricultural land be determined through the land's productive value instead of market value.

"The valuation of land for purposes of taxation and fair market value differ due to constitutional amendments and subsequent legislation," he said in an email.

The original owners of Sinclair Farm were Charles and Josie Sinclair. The couple bequeathed 970 acres to the university and stated money raised from selling the land should go to MU's Sinclair School of Nursing.

Charles Sinclair suffered from two debilitating injuries which gave the family appreciation for nursing care, according to prior Tribune reporting.

Basi said the tract is the first section of the property to be sold and confirmed that the money from the land sale will go to the nursing school.

The Sinclair School of Nursing has been working toward a new \$55 million building that will allow the school to increase its enrollment by 25 percent and expand research opportunities.



Cuts lead to crunch in MU communications

By Rudi Keller

On Thursday, the University of Missouri publication called the MizYou viewbook won a gold medal Circle of Excellence award from the Council for Advancement and Support of Education.

Produced in June 2016, the viewbook was an annual product of the Mizzou Creative staff. According to the council's website, "the awards acknowledge superior accomplishments that have lasting impact, demonstrate the highest level of professionalism and deliver exceptional results."

The council is an international association for higher education professionals who work on alumni relations, communications, development and marketing. The award wasn't the first time Mizzou Creative was honored by the council.

But it will be the last.

On June 5, as part of cutbacks across campus and the UM System, the Mizzou Creative staff was laid off. The 14-person office produced the Mizzou alumni magazine, the MU website and social media accounts, the visitor's guide along with student admissions and recruiting publications.

Deadlines were looming on many of those products. And to get them finished, Suzette Heiman, head of the new Joint Office of Strategic Communications and Marketing, on June 9 asked for help from communications staff assigned to schools and colleges across campus.

"We have several publications that were in the final stages of being completed" when the Mizzou Creative staff was dismissed, spokesman Christian Basi said. "We have a lot of resources on campus, even following the cuts that took place. The offices relying on those publications asked for some help in the final stages."

The most pressing work, he said, was admissions publications.

"We are talking about everything from postcards to pamphlets to large pamphlets," Basi said.

Basi's five-person staff helped with proofreading, he said.

Departmental communications staff contacted about being asked to do extra work declined to comment. The creation of a communications office that serves the campus and the UM System is the first step in a full review of how the university communicates with the public, Basi said.

"President" Mun "Choi and interim Chancellor" Garnett "Stokes have said publicly we are going to do a top to bottom review of every unit on campus and review every resources need," Basi said.

For many of the layoffs made by the university, staff was told they were no longer employed and asked to leave whatever work was in process behind. For staff dealing with communications, the cuts also included most of the University Relations staff at the system level, who handled press relations and lobbying on behalf of the system.

Another publication facing a deadline is the Mizzou magazine.

"It is nearly complete and it will be finished and go out," Basi said.

Last fall, the magazine cut back from four to three publications per year and the mailing list was reduced for two of the remaining issues to Alumni Association members only. The next edition, which is supposed to go to all alumni, is due in mailboxes in August.

There has not been a general call for help to produce the next issue, but it will be produced "and it is going to be continued to be produced for the foreseeable future," Basi said.

Website changes are intended to give the university's internet presence a uniform look and update pages with newer software.

"We have a large amount of websites on campus that may not be in sync with each other," Basi said. "We will do a review to see what resources we have on campus, what resources there are in each college and school and what we can do to present a unified message to the outside community."

T COLUMBIA DAILY TRIBUNE

MUPD to add more officer positions in next budget year

By Alan Burdziak

As the University of Missouri System continues budget reductions at all four campuses and in various departments, some divisions have been chosen for strategic investments, one of them being the flagship campus police department.

Following through on former interim Chancellor Hank Foley's plan to beef up the police force at the university's Columbia campus, there will be five additional officer positions in the fiscal year 2018 budget, which begins July 1. Maj. Brian Weimer said the department will have 50 sworn officer positions starting then, and will have to fill nine of them. Three dispatcher positions also will be added, he said.

Despite a projected enrollment decline of almost 5,000, to about 30,800, Weimer said adding more officers is necessary.

"The community has to feel safe to teach and also to live and learn here," Weimer said. "We have a strong commitment to do that."

The department did have some cuts, though, he said, losing two civilian staffers and a vehicle. UM System President Mun Choi recently laid out details of cuts of about \$100 million across the system, with nearly \$60 million in reductions at MU, including the elimination of 342 jobs at the campus, 91 of which were layoffs and 65 of which were non-tenured faculty who retired or were not offered a contract renewal.

UM spokesman Christian Basi said MU police are among numerous departments around the system that have been chosen for \$40 million in strategic investments, using money from the cuts, which he added went further than necessary to plug the budget hole.

“Safety is the No. 1 priority on this campus,” Basi said, “and that is one of the key reasons why there is an additional investment made in the MU Police Department.”

Many colleges and departments at MU will have more money in fiscal year 2018 to hire more faculty, reorganize and restructure. In all, 161 faculty positions will be added at MU, including 59 at the College of Medicine, 19 at the College of Engineering and 22 at the College of Arts and Sciences, according to a budget document on the system’s website. The expected costs of those hires is about \$48.7 million.

Weimer said even after doing the math with the decline in projected enrollment, MU’s force will still have fewer officers per thousand people on campus than other universities in the Southeastern Athletic Conference. Officials have for the last few years sought to increase police personnel to make up the gap.



SOUTHEAST
MISSOURIAN

ST. LOUIS POST-DISPATCH



THE KANSAS CITY STAR.

Mizzou to encourage adoption of research animals

Monday, June 19, 2017

Generated from News Bureau press release: [Mizzou Announces New Animal Research Adoption Partnership](#)

Watch the story: <http://mms.tveyes.com/PlaybackPortal.aspx?SavedEditID=0d5efeba-4f2c-44d9-b29e-565e55633e5c>

COLUMBIA, Mo. -- The University of Missouri plans to work with a new organization to encourage more people to adopt research animals, a move that comes as the university is being sued by another organization seeking records on dogs and cats it uses in research.

The university announced Thursday it will work with Homes for Animal Heroes, a program developed by the National Animal Interest Alliance, which supports responsible animal research, The Columbia Daily Tribune reported.

At the same time, the university is being sued by Animal Rescue Media Education over a request for documents relating to 179 dogs and cats used in research. The university system demanded more than \$82,000 to find and copy the records for the organization's Beagle Freedom Project.

Patti Strand, president of the National Animal Interest Alliance, called the Beagle Freedom Project a radical animal-rights group trying to end animal research.

"Our national group is aware in general of the Beagle Freedom Project, and basically, we just felt like there needed to be an organization that was supportive of humane, properly conducted research and to adopt these animals," she said.

In response, Kevin Chase, vice president of Animal Rescue, said the National Animal Alliance worked to protect animal research, noting its board includes a lawyer for the company that operated Ringling Bros. Circus and others involved in laboratory research on animals.

"We are suspicious because this is an entity that speaks out on behalf of businesses and others who use animals for profit," he said.

The partnership announced Thursday is not intended to appease the Beagle Project, university spokesman Christian Basi said.

"We have always had a robust adoption program in place, and we have actually been in discussions with this organization for a very long time, and we are very pleased that we are able to make this connection and expand our adoption program," Basi said.

The university said in a news release since 2007, it had found homes for 394 dogs and 294 cats no longer needed for research. In September, the university said it had had euthanized 242 dogs and cats and found adoptive homes for 155 since the beginning of 2014. Basi could not provide the number of animals euthanized since 2007.

The Beagle Project's lawsuit is in settlement negotiations in Boone County Circuit Court, said attorney Dan Kolde, who represents the Beagle Project.



[MU strives to find homes for research animals](#)

By Finley Walker

COLUMBIA - MU is partnering with the program "Homes for Animal Heroes" to try and increase the number of adopted research animals.

Homes for Animal Heroes is a program that connects research animals with foster homes. The goal of the program is to help animals transition from research subjects, to household pets. The National Animal Interest Alliance, an animal welfare group, sponsors the program.

MU spokesperson Christian Basi said the adoption process involves two steps.

"The first step is obviously identifying the animals, and then acclimating those animals so that they're ready when they're placed for permanent adoption," Basi said. "So they go to basically a foster home, we have people who are specially trained to help acclimate these animals to the foster environment. And then those animals are matched to a family."

MU's animal research program is monitored by a committee made up of staff members, researchers and community members. They decide if animals are necessary for a study, the maximum number of animals a study needs and whether animals are ready for adoption after research.

Basi said despite negative media portrayals, animal research is necessary to help find cures not only at the University, but across the entire country.

"We really do need their assistance in these studies because without that knowledge, first of all, we would not be able to treat animals at the veterinary clinic for a variety of diseases," Basi said. "We now have treatments for cancer in animals, we have treatments for diseases in animals that we didn't have twenty or thirty years ago."

Right now, the University is currently being sued by an Animal Rescue Media Education project called the "Beagle Freedom Project" for demanding more than \$80,000 to locate and copy records on specific animals.

Basi said the partnership with Homes for Animal Heroes is not the University's response to the lawsuit, or to the beagle euthanasia controversy of August 2016.

MISSOURIAN

[Don't fry your eyes when total eclipse day comes](#)

By Gabriela Velasquez

COLUMBIA — Looking directly at a solar eclipse without any eye protection is a really bad idea.

The exception on Aug. 21, though, will be those short couple of minutes when the eclipse reaches totality, the period when the moon completely covers the sun's face and leaves only its corona visible. In Columbia, that will be from 1:12 p.m. to nearly 1:15 p.m.

The sun is an exploding ball of hydrogen and helium that can literally burn its image into the naked eye if one looks at it long enough. It's so bright that prolonged exposure to the eye can have massive repercussions.

Angela Speck, director of astronomy at MU, is studying the upcoming eclipse and helping Columbia prepare for it.

"We should never look at the sun directly," she said, adding that doing so is akin to someone with sensitive skin stepping out without sunscreen.

"On a sunny day when you're not looking directly at the sun, but your skin is seeing it, your skin can get burned," she said. "If you look directly at it, you will have some of those high-energy photons and UV rays going to the back of your eye and hitting the retina."

Those ultraviolet rays can essentially cause an optical sunburn, but they're not the only aspect of the sun that causes damage. Infrared light, Speck said, works differently. Whereas ultraviolet rays can cause visible burns, infrared rays can cause the eye to overheat.

"There are many things that can happen to the eye when directly looking at the sun," said optician Josh Stanfast from Andrew Stone Optometry. "It is usually too painful to do so longer than two to three seconds, but if done longer can result in solar retinopathy, which can have short- and long-term effects as the retina tissue is oxidized by the UV."

Short-term damage, Stanfast said, can range from dark spots and temporary blindness to headaches and blurry vision. Long-term damage, in extreme cases, can include cataracts and blindness.

Part of the risk of eye damage from the sun, Stanfast said, is that the retina has no pain receptors. Your eyes could be burning, but you would be unaware.

"Serious damage can be done in as little as 60 to 100 seconds," he said.

Regular old sunglasses aren't enough to protect our eyes from the sun, not even the ones that offer UV protection. Sunglasses, Speck said, are built to protect eyes from reflected sunlight, not direct sunlight.

"Not only are solar glasses intended to prevent any UV penetration to the eye, but they block the ultra-high intensity visible light," Stanfast said, "allowing you to look directly at the sun without essentially burning your retinas."

Eclipse shades, or solar glasses, block out so much light that wearing them for anything other than looking at the sun is like being blindfolded. Only the strongest light gets through them.

"Solar glasses are dramatically darker than sunglasses and are even darker than most welding shields to help put their level of protection in perspective," Stanfast said. "Solar glasses even

have special filters that sunglasses simply do not have. It would make them impossible to wear for anything other than viewing the sun."

Eclipse watchers also should avoid looking at the sun through binoculars, telescopes or phone cameras. And the common notion that one can look at the sun through a glass of water or tea is false. Using reflective Mylar doesn't work, either.

Even those with eclipse shades should avoid using telescopes or binoculars because their lenses will focus the sun's rays like a magnifying glass and melt the shades. It is safe, however, to buy solar filters to put over binoculars.

It is also safe to use the naked eye to watch the eclipse during totality. The corona, like the rest of the sun, emits harmful ultraviolet, infrared and x-rays, but the Earth's atmosphere dilutes the rays and makes the corona safe to observe, Speck said.

"It's only as bright as the full moon," she said. "So even though you're still getting light in, it's not with the (same) intensity."

Normally, there's no way to observe the corona without looking at the sun directly.

"The sun itself is a million times brighter than the corona," Speck said. "With only a thousandth of the sun showing, that's still a thousand times brighter than the corona on its own."

Eclipse shades can be purchased from a variety of shops, including the Mizzou Store, for around \$1.50. Solar filters for cameras and telescopes can be purchased locally at Creve Coeur Camera. Online, solar filters for binoculars run for around \$20.

For a comprehensive guide to eclipse safety, check out NASA's website and Mizzou's official eclipse page. There's good advice for people who want to make sure they can see the next solar eclipse in 2024.

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Top Drawer: Kudos

This mention is the result of a direct story pitch by the MU News Bureau

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