

Best of last year: The top Medical Xpress articles of 2021

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It was a good year for medical research of all kinds, as a team of researchers at Rush University Medical Center in Chicago wondered [if a treatment for Alzheimer's has been sitting on pharmacy shelves for decades](#). They found that gemfibrosil, a cholesterol-lowering drug, and retinoic acid, a vitamin A derivative, were both effective at counteracting the damage done by Alzheimer's in animals.

A team of researchers at the University of California Riverside found that [cannabis use disorder may be linked to a growing number of heart attacks in younger adults](#). The disorder is defined as the continued use of cannabis despite it being clinical impairment. The researchers found higher than average numbers of heart attacks in [young people](#) hospitalized with the disorder—and it was most pronounced in African Americans.

Back in March, a group of researchers with the U.S. Centers for Disease Control and Prevention discovered why [blood type](#) may matter with COVID infections. They found [the virus was particularly attracted to those with blood group A antigens in their respiratory cells](#). Unfortunately, they were not able to identify why.

A team at Purdue University reported on their study of [the link between vitamin D and inflammation](#). They found that vitamin D reduced lung inflammation incited by T cells during COVID-19 infections. More specifically, they found it sped up the transition of T cells from their pro-inflammatory phase to their anti-inflammatory phase—a possible beneficial therapy for patients with severe inflammation in their lungs.

A combined team from Kansai Medical University and Hiroshima University found that [drugs that mimic the effects of cigarette smoke can, in some instances, reduce the ability of the SARS-CoV-2 virus to enter cells](#). Their finding helped to explain why there were lower numbers of smokers infected by the virus versus non-smokers despite the added risk of lung damage from smoking.

Early in the year, Chinese researchers Weifeng Shi and George Gao suggested measures to prevent the spread of a new type of flu strain after seven farm workers in Russia were infected with a crossover flu variant. They suggest the H5N8 strain of the avian influenza virus has [the potential of setting off another pandemic](#)—it was first reported in a duck

in China in 2010.

A combined team from Kyoto University and the University of Fukui found that [an antibody for uterine sensitization associated gene-1, or USAG-1, could stimulate tooth growth in mice suffering from tooth agenesis](#), a congenital condition. Their findings indicate that similar antibodies in humans may be stimulated to regenerate lost teeth.

A team with members affiliated with a host of institutions in the U.S. and one in Australia [discovered a potential cause of Alzheimer's disease](#)—rather than amyloid plaques, they found evidence that cells in the brain slow in their ability to clean themselves—a finding that suggests fasting, exercise and drug therapies may prevent its onset.

Researchers at Sinai Health claimed to have found evidence that [all cancers fall into just two categories](#)—those in which a protein called the Yes-associated protein (YAP) is present and those in which it is not. They noted that the two groups differed in drug sensitivity or resistance and that YAP appeared to play a role in the formation of malignant tumors.

A team at National Institute for Health Research Leicester Biomedical Research Centre studied data on 412,596 middle-aged people in the UK Biobank and found evidence showing that [slow walkers were almost four times more likely to die from COVID-19 than the rest of the population](#)—they also found their risk of contracting a severe infection was double that of the rest of the population.

A team at the La Jolla Institute for Immunology found that [the Moderna COVID-19 vaccine spurred a lasting immune response](#). They report that low doses of the vaccine protected people for a minimum of six months—and likely much longer. They even went so far as to suggest that people who have had the two initial Moderna vaccines do not need a

booster.

Also, a team of researchers at the Icahn School of Medicine at Mount Sinai found evidence that [smart watches could detect COVID-19 symptoms before a person had become aware that they were infected.](#) The watches monitored for sustained changes in heartbeat that occur during COVID-19 infection.

University of Florida graduate student Brianna Costales, working with assistant professor Amie Goodin, found evidence that [many psychiatric patients are getting the risky drug gabapentin "off-label."](#) Normally prescribed for treating seizures and nerve pain, they found the drug is often prescribed for other uses such as psychiatric disorders like depression and anxiety. The problem is that mixing it with other drugs can be dangerous.

Samuel Preston of the University of Pennsylvania and Yana Vierboom with the Max Planck Institute for Demographic Research found that the [U.S. was suffering more excess deaths and more life years lost each year after 2017 than those associated with the COVID-19 pandemic in 2020.](#) The increase in deaths, they note, has been due to higher mortality and lower survival rates for people who are sick or injured—a sign of the U.S.'s declining healthcare system.

A team at the University of Michigan last summer found that [existing drugs can kill the SARS-CoV2 virus after infection of a human cell.](#) They used AI-powered analysis to identify FDA-approved drugs with the potential of killing SARS-CoV-2 inside infected cells and found 17 contenders.

A team of researchers led by Seth Berkowitz of University of North Carolina Health Care showed that [adding SNAP benefits for older adults on Medicare and Medicaid could reduce hospital visits and healthcare](#)

[costs](#). He noted that 5.2 million people over the age of 60 suffer from food insecurity, which can adversely impact health.

And a team at the University of Virginia School of Medicine [found the missing link in the human body's blood pressure control system](#).

Scientists had been looking for the link for 60 years—it turned out to be a mechanotransducer inside of kidney renin cells. The researchers found it by using a combination of lab models.

Also, this past summer, a team with two members from the University of Technology Sydney and a third with the Ingham Institute for Applied Medical Research discovered [a promising new treatment for COVID-19 infections](#). Kaneez Fatima Shad, Wissam Soubra and Dennis John Cordato found evidence that the seeds of the flowering plant *Nigella sativa* might prove useful for treating some COVID-19 patients.

A study led by a team of researchers from the Medical Research Council Toxicology Unit at the University of Cambridge and the European Molecular Biology Laboratory in Germany found that [common medications can accumulate in gut bacteria](#), possibly reducing their effectiveness. They found that certain types of bacteria prevent the drugs from being processed.

Also, a team of researchers from the University of California, Irvine, in collaboration with the National Park Service's Redwood Creek Vegetation Team, found that [a single molecule within a specific plant used by Native Americans could be used to treat both pain and diarrhea](#)—it activates the KCNQ2/3 potassium channel. The plant has been used for centuries by Native Americans to treat bites, bee stings, sores, burns and gastrointestinal distress.

And a small group at Université de Montréal led a study that found that the older a person is, the more antibodies they have for fighting the

SARS-CoV-2 variants. They found that [older people who received the Pfizer, BioNTech or AstraZeneca vaccines had much higher levels of antibodies than did people who were younger](#) or who had been infected by the virus. They also found that the same antibodies were effective in repelling the delta variant.

A team with members from the Public Health Institute, the Veterans Affairs Medical Center and the University of Texas Health Science Center [compared the decline in effectiveness for the Moderna, Pfizer and Janssen vaccines](#) and also the mortality consequences involved. They found that protection declined for all of the vaccines from an overall average protection percentage of 87.9 down to 48.1 after seven months.

And a team at Beth Israel Deaconess Medical Center found that [many people with high blood pressure may take a drug that worsens it](#). They report that 1 in 5 people with hypertension who take medications to lower their blood pressure also take other medication that could interfere with it, putting them a risk of a host of health problems.

Finally, a pair of researchers at the Lund University Diabetes Centre in Sweden found that [poor sleep quality and falling asleep later is associated with poor control of blood sugar after meals](#). Neli Tsereteli and Paul Franks found that longer sleep could be associated with lower blood glucose levels at night, following on the heels of higher levels in the morning due to a breakfast high in carbohydrates and fats. Shorter sleep, on the other hand, resulted from eating food with high glucose levels later in the day.

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