

# The Empowerment through Science & Technology Initiative (ESTI)

ESTI'S GOAL IS TO PROVIDE YOU WITH  
ACCURATE INFORMATION ON SCIENCE,  
TECHNOLOGY, AND HEALTH.

## Get In Touch

---

Are you interested in learning how to use your technology?

At ESTI, we're hoping to start online workshops on how to use specific technologies and get the most out of your products. If this is something you'd be interested please fill out this survey ([https://cutt.ly/ESTI\\_survey](https://cutt.ly/ESTI_survey))!

Participate in a study about how COVID-19 and the public health crisis impacts out behavior. Please visit this site ([www.colelab.org/covid.html](http://www.colelab.org/covid.html)) for more information, and check out this infographic ([https://cutt.ly/study\\_info](https://cutt.ly/study_info)) on how to sign up.

The Cole Neurocognition Lab  
Center for Molecular & Behavioral Neuroscience  
Rutgers University-Newark  
197 University Avenue Newark, NJ  
P: 973-353-2706  
E: [brain.research@newark.rutgers.edu](mailto:brain.research@newark.rutgers.edu)  
Facebook: <http://www.facebook.com/estirutgers/>

## Contents

---

MYTH BUSTERS:  
PEOPLE ONLY USE 10%  
OF THEIR BRAINS

NEURO NEWS:  
WHAT IS FMRI?

THIS MONTH IN SCIENCE:  
NOBEL PRIZE WINNERS  
FOR CRISPR

HEALTH:  
COVID-19 VACCINE

# MYTH BUSTERS

## Sources:

1. Mikkelsen, D. (2019, May 08). Do we only use ten percent of our brains? Retrieved February 24, 2021, from <https://www.snopes.com/fact-check/the-ten-percent-myth/>

## MYTH: People Only Use 10% of Their Brains

---

The myth that we only use ten percent of our brain is one that has endured through years despite evidence to the contrary from multiple studies. One of the reasons that this myth still exists is that it was adopted by psychics to explain their supernatural abilities. Additionally, movies like *Limitless* and *Lucy* make it harder for this myth to die.

The creation of different imaging technologies such as functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) scan, has helped further the field of neuroscience. These imaging technologies also reveal that we, in fact, use most of our brain. Different regions of the brain are activated for certain tasks such as reading, writing, or speaking, so, even if we don't use all of our brain at the same time, throughout a regular day, we use most, if not all, of our brain power.



# What is fMRI?

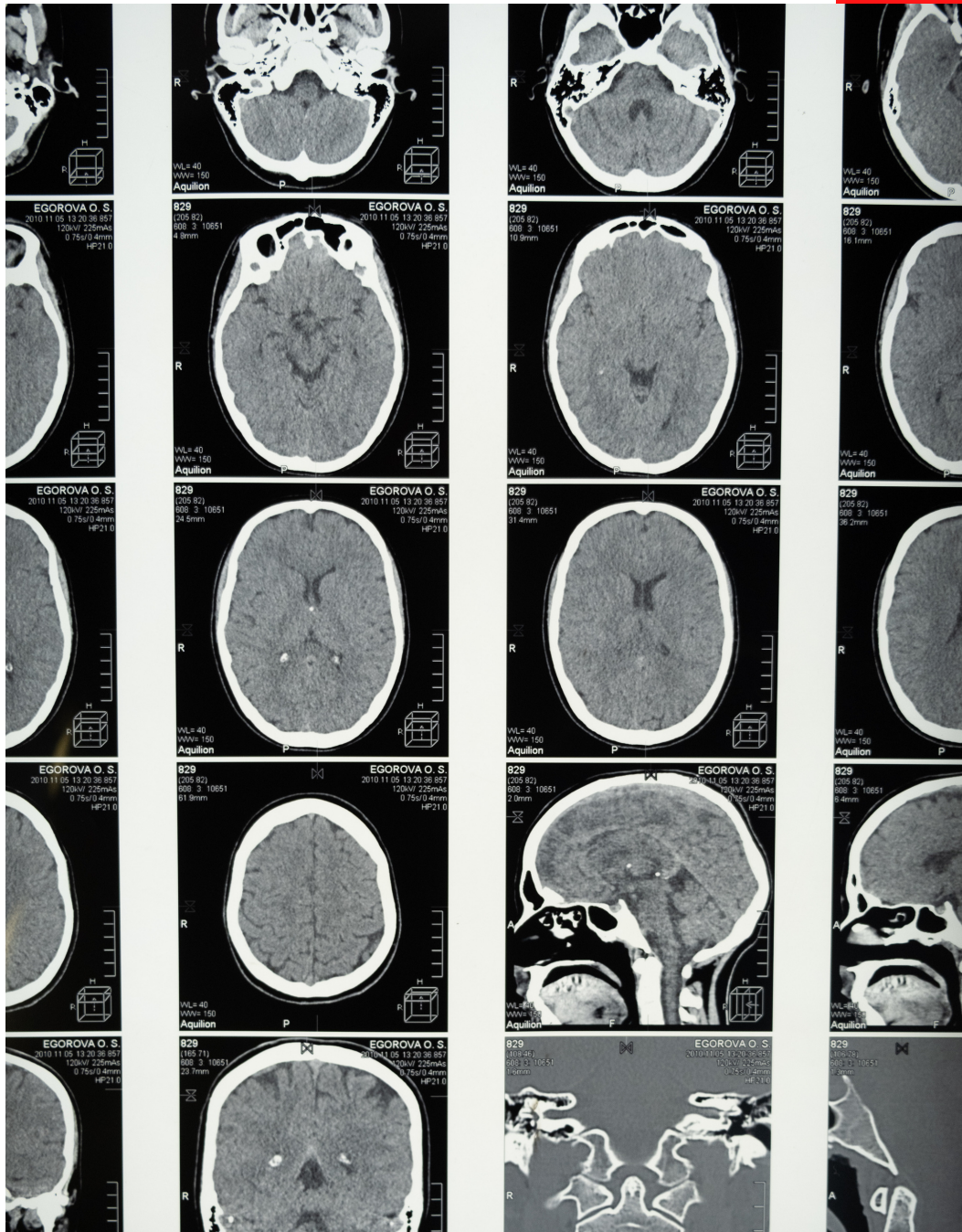
MRI stands for Magnetic Resonance Imaging. If your doctor has ever requested you have an MRI, then you've probably had a technician guide you through the large tube-like machine and tried to stay as still as possible as images were being taken.

Magnetic resonance imaging (MRI) is an imaging technique that uses a magnetic field to measure the changes in blood flow throughout the brain (or other parts of the body) during the scan. Besides MRI, there's also fMRI (*functional* magnetic resonance imaging). The difference between the two is that MRI scans image anatomical structure while fMRI images metabolic function. For instance, if you were asked to read a sentence while in an fMRI, the blood flow to a certain region of the brain would increase. This allows doctors and researchers a noninvasive way to look at the human brain.

# Neuro News

## Sources:

1. What is fmri? (n.d.). Retrieved February 24, 2021, from <https://cfmriweb.ucsd.edu/Research/whatisfmri.html>





# This Month in Science

## Sources:

1. Wu, K., Zimmer, C., & Peltier, E. (2020, October 07). Nobel prize in Chemistry awarded to 2 scientists for work on genome editing. Retrieved February 24, 2021, from <https://www.nytimes.com/2020/10/07/science/nobel-prize-chemistry-crispr.html#:~:text=The%20Nobel%20Prize%20in%20Chemistry,has%20gone%20to%20two%20women.&text=United%20Nations%20World%20Food%20Program%20wins%202020%20Nobel%20Peace%20Prize>

## Nobel Prize Winners for CRISPR

---

In October, the Nobel Prize in Chemistry was awarded to Emmanuelle Charpentier and Jennifer A. Doudna for their work on CRISPR-CAS9, a method to edit DNA. This is the first time that this award has been given to two women.

In 2012, Dr. Doudna and Dr. Charpentier co-authored their first paper explaining this method. Since then it has been used for testing to cure various genetic disorders in humans, creating new crops, and even bringing back species from extinction.



Emmanuelle Charpentier



Jennifer A. Doudna



# COVID-19 Vaccine

In the USA, companies like Johnson & Johnson, Moderna, Pfizer, and AstraZeneca are in late-phase testing for vaccinations for COVID-19. This means that the USA could be close to having a vaccine available for the public, but measuring the efficacy is the most important step at the moment.

Determining how well a vaccine works in a randomized, controlled trial, or its efficacy, gives a sense of how much a vaccine could help with the growing number of cases that are rising every day. The U.S. Food and Drug Administration (FDA) recommends that vaccines for COVID-19 should reach a minimum of 50 percent efficacy. This means that, amongst those who receive the vaccination, at least 50 percent should show immunity to COVID-19 compared with those who received a placebo.

Even though a vaccine may only have an efficacy of 50 percent, due to the number of lives lost due to COVID-19 and the high rate of transmission, making finding a vaccine that safely helps at least some people paramount.

# Health

## Sources:

1. Cunningham, A. (2020, October 16). What does COVID-19 vaccine efficacy mean? Retrieved February 24, 2021, from <https://www.sciencenews.org/article/coronavirus-what-does-covid-19-vaccine-efficacy-mean>

