

SCIENTIFICA DESIGN DIRECTIONS

Hi everyone!

This document is a comprehensive guide that explains the design specifications and aesthetics we are looking for in the spreads you submit for Scientifica Magazine. Please read the entirety of this document so you understand the direction in which we are taking the design. First we will go through the list of things you MUST stick to. Then, we'll give you some examples of designs we found interesting!
Happy designing!

Be creative with the title fonts, and **THINK OUTSIDE THE BOX!!!** Make something that looks nice, and keep in mind, design doesn't always have to be directly correlated to the article topic!

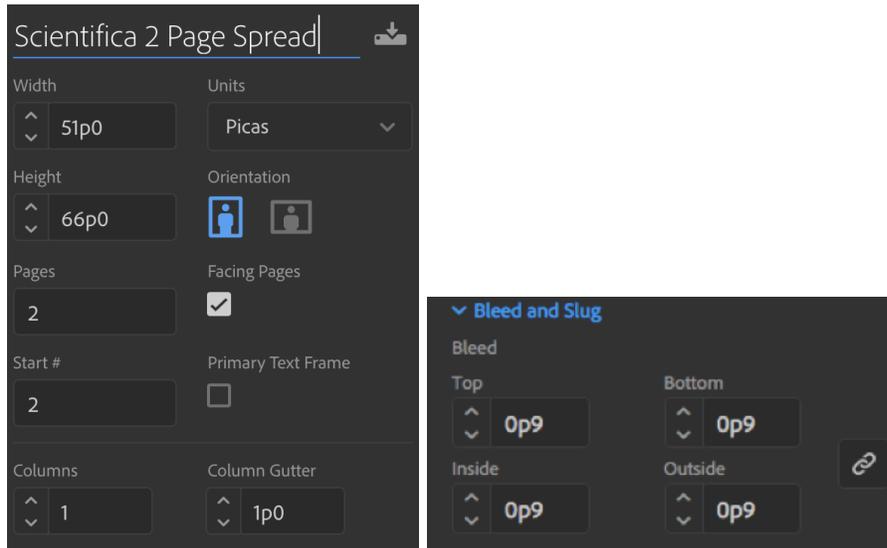
If you have any questions feel free to text or email Meera Patel (mnp59@miami.edu) or Megan Piller (mep233@miami.edu)!

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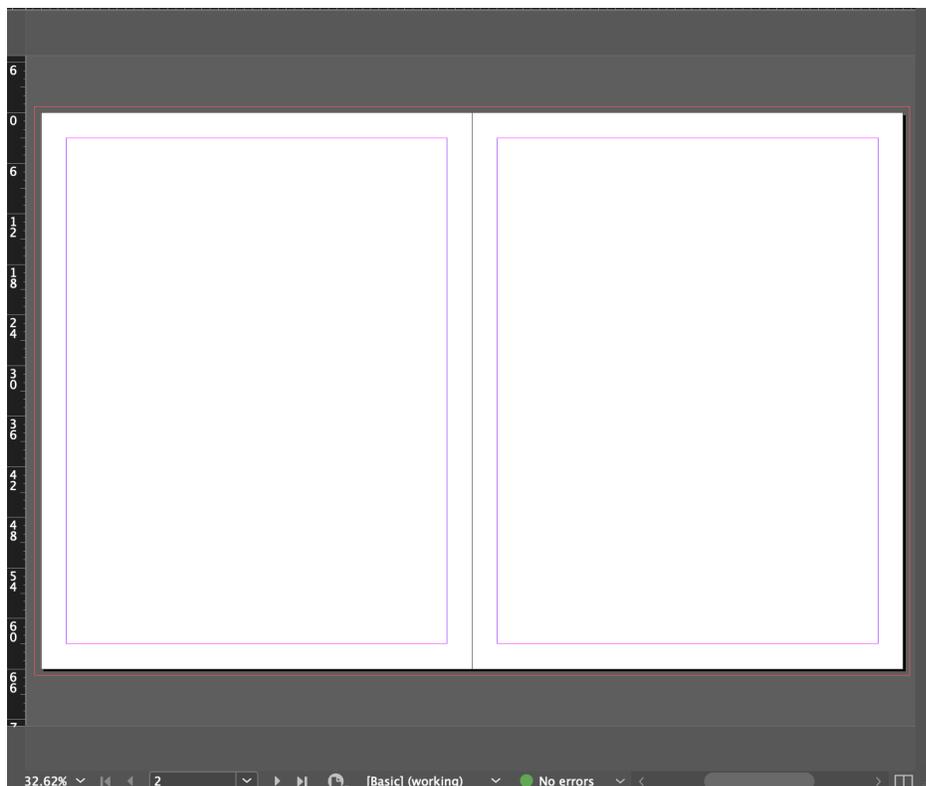
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SETTING UP INDESIGN FILE:

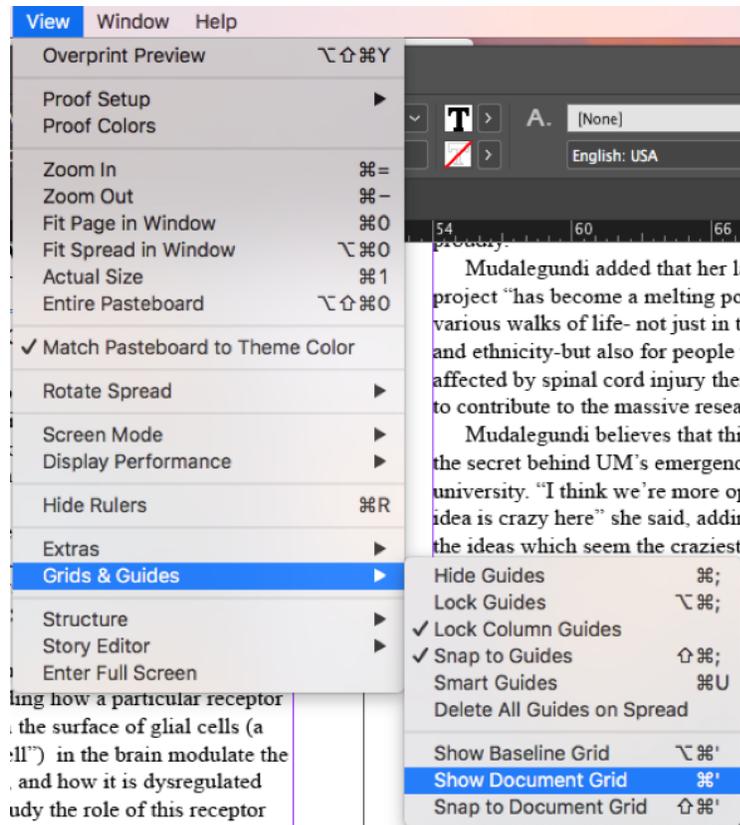
- Download InDesign and open a new Document and set the **Bleed to 0p9**
- If it is a half spread, open 1 page, if it is a full spread make it 2 pages.
- Make sure that “**Facing Pages**” is checked, and that the page **Start # is 2.**



When you open the document it should look like:

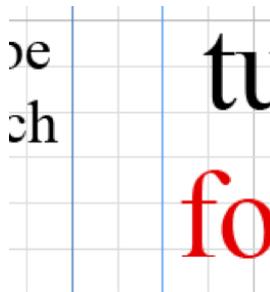


SET UP DOCUMENT GRID



SPACING

- Text boxes should be spaced apart **2 little boxes** which can be seen with the document grid:

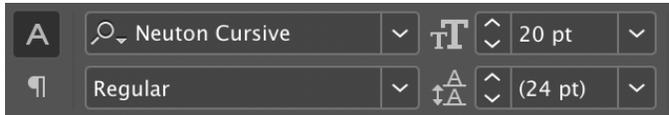


- All **photos must go to the red/pink bleed line**
- **Text must be on the purple/blue line**

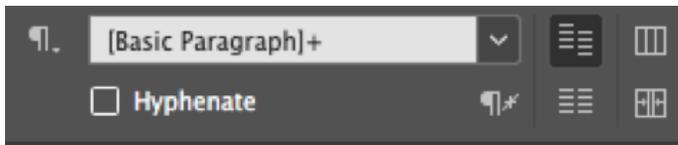
REQUIREMENTS

Body Text:

- The text should not go outside the blue and pink lines
- **Body text should be 10 point “Neuton” font.**
 - Download off of Google Fonts [here](#)
- The **first letter of every issue is 20 point “Neuton: Italic,” with a drop cap of 2.** (shown below.)



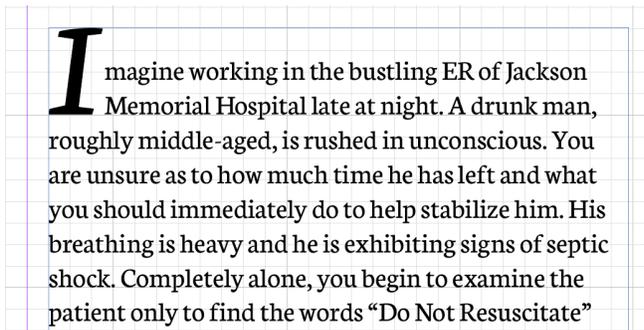
- Be sure that the **body text color is black.**
- Be sure to de-hyphenate body text (under the paragraph tab):



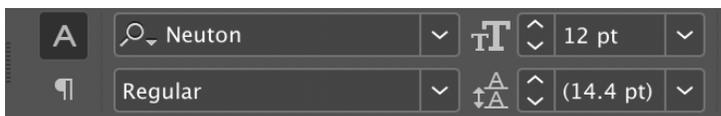
- The **paragraph indent should always be 1p5**



- Beginning of articles should look similar to:

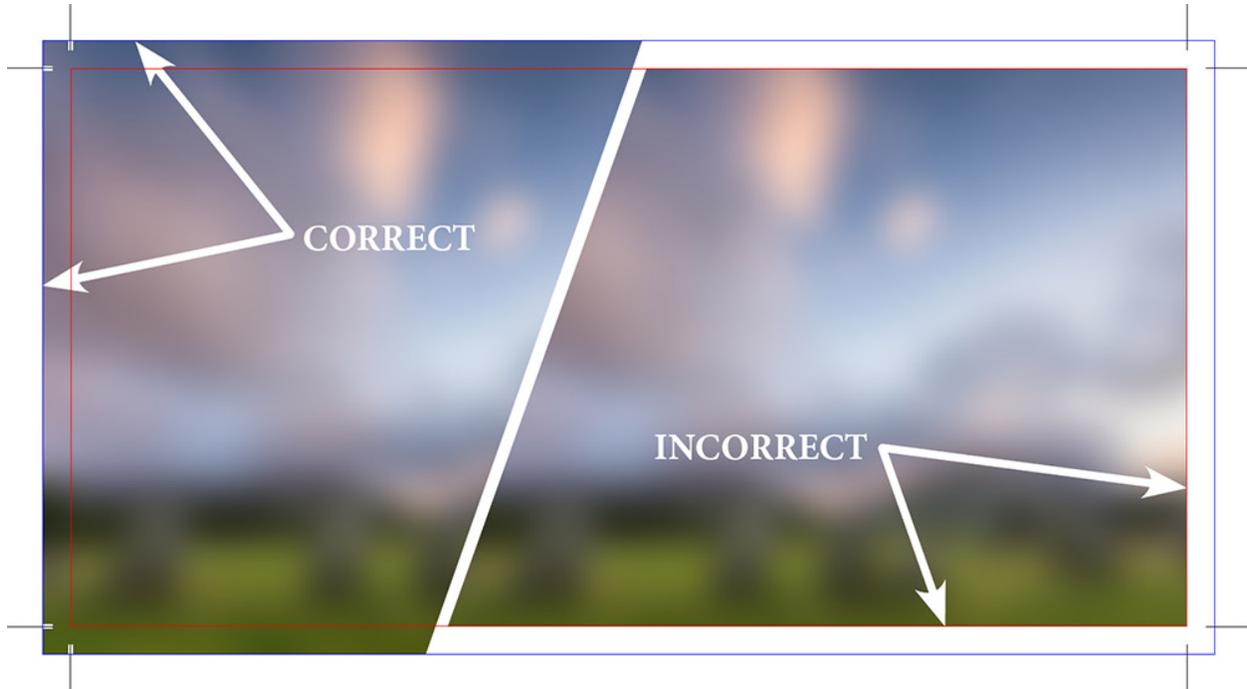


You can use these to create the above (faster)



BLEEDS

- Any and ALL images need to be extended **ONE BOX PAST the RED BLEED LINE.**

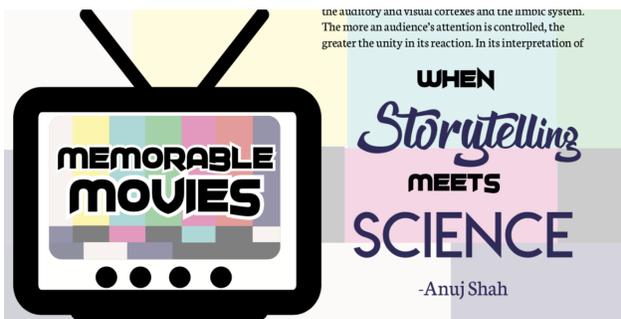
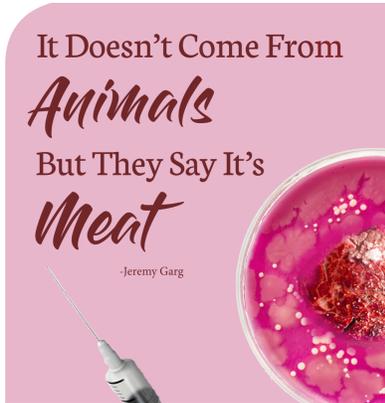


- When you are finished designing, **MAKE A LARGE WHITE (PAPER) RECTANGLE** around the WHOLE spread **ONE BOX PAST the RED BLEED LINE** and **SEND TO BACK**

TITLE DESIGN

As previously mentioned, if creative fonts or title art are not being used, you can stick to **LEMON MILK** for the main title font and **Josefin Sans** for any subheadings/subtitles. However, the examples below employ different fonts for creative purposes.

Below are some examples of creative title design:



FONTS

Scientifica has a set of fonts that we generally adhere to, as follows.

Body text: Neuton regular, size 10

Photo captions: Neuton regular, size 9

If you're having trouble finding title and subtitle fonts, we often use the following:

Major headings/titles: LEMON MILK

Subheadings: Josefin Sans

However, keep in mind that title and subheading fonts can be varied, depending on your unique spread design -- examples of titles and title art that don't conform to the fonts mentioned above can be found on page 6.

- **FONTS MUST BE DOWNLOADED FROM ADOBE FONTS**

- fonts.adobe.com
- When crediting the author of the article use a lowercase "b"
 - **by** First Last
- When crediting artists, designers, or photographers follow the following format:
 - **Illustration: First Last**
 - **Design: First Last**
 - **Photography: First Last**
 - **Illustration & Design: First Last**

TEXT WRAPS

Adobe has a great Text Wrap resource linked below

<https://helpx.adobe.com/indesign/using/text-wrap.html>

PHOTOGRAPHY

- For the most part, any photography we want to be used in a spread will be provided by Scientifica staff photographers and will be in the Box folder for the particular article you're working on!
 - **All images taken by photographers must have credit and captions.**
 - Neuton, regular size 9
- However, if photos aren't provided and you would like to use others, you may use stock photos
 - We don't own the rights to use images off Google Images
 - Scientifica has a shutterstock account; however, please check free stock sites first and IF necessary use our account (**ask before pulling pictures off the account** and BE CERTAIN you will use the image before downloading it off of shutterstock)
 - Free websites can be found below:
 - <https://www.pexels.com/>
 - <https://pixabay.com/>
 - Shutterstock Information:
 - Username: scientificaeditor@gmail.com
 - Password: miami12

EXPORTING A SPREAD

Please ensure that the **article is copied and pasted correctly** on the design spread before exporting!

When you finish a spread, please **export it using the “package” function** in InDesign (File → Package). This automatically groups together several items into a single folder, including:

- INDESIGN FILE (indd and idml formats)
- All photographs inserted
- ANY PHOTOSHOPPED IMAGES YOU DID
- PDF export of the spread (be sure the export quality setting is at maximum)
- All fonts you used

This package will export as a folder--please upload this to the box folder for that article!

Finished Spread Example:

WHAT'S THE ADDY?

A Risk Factor Analysis of Adderall

-Marc Levine

ONE OF THE MOST COMMON prescription medications on any given college campus is a stimulant called Adderall, designed to help users maintain focus and appropriately govern their attention. Adderall is a central nervous system (CNS) stimulant of the phenethylamine class and is most frequently prescribed to people afflicted with Attention Deficit Hyperactivity Disorder (ADHD). Approximately 11 percent of American children have been formally diagnosed with ADHD, per the Center for Disease Control; the actual percentage may now be even higher, as the CDC notes that diagnoses rose by more than 40 percent from 2003 to 2012, the last year for which the agency offers data.

Typically, symptoms of ADHD begin to appear around age twelve and can cause issues in class or extracurricular activities. The symptoms can be broken down into two categories: hyperactivity and inattention. Symptoms of hyperactivity include having trouble sitting still, difficulty in waiting one's turn, habitually interrupting others, and blurting out answers before the speaker has finished their question. Given that modern education requires students to sit still and patiently absorb information for several hours at a time, it is no surprise that hyperactivity can become a distraction in the classroom. Symptoms of inattention include a lack of attention to details, failure to follow instructions, difficulty finishing tasks, trouble with organization, and frequent forgetfulness, including losing track of personal items. While hyperactivity is likely to cause behavioral issues, inattention frequently affects

performance for afflicted students. Many concerned parents bring their children to a psychiatrist or licensed clinician, who is able to diagnose the disorder and prescribe medication in hopes of keeping the hyperactivity contained.

Sadly, like most prescription medications, Adderall is not without side effects. Adderall commonly causes dryness of mouth and grinding of the teeth, a behavioral response to stress; stimulants like Adderall release norepinephrine and dopamine and this release results in a state mimicking stress. While teeth grinding can be mitigated with over-the-counter magnesium supplements, other potential physical side effects like hypertension, nausea, difficulty urinating, and erectile dysfunction could require additional prescription medications to offset. Finally, the appetite suppressing qualities of routine amphetamine use can lead to significant weight loss, though this may be either a bug or a feature depending on the user's distance from their ideal body weight.

There are also psychological side effects to reckon with. At normal therapeutic doses, it is not uncommon for Adderall to cause increased self-confidence, mood swings, insomnia, changes in libido, and changes in sociability. Adderall may also augment anxiety or irritability, depending on the user's personality and mental state. The enhanced concentration granted by Adderall is by no means guaranteed to remain directed at productive pursuits, and users may become obsessively engaged in various distractions and procrastinatory activities instead of the intended tasks.

Just that Adderall to signi has res much t and me weight prescri approv proble ADHD order t often h dysmo Ad at a pro level. A such as muscle Physio regulat the bod output "overcl its perf deleter is bann well as Lik to com take th last-mi to driv constit that pu higher Per potenti release order t In extr in wate addicts of e.g. r Adder exacer Adder

THE SILENT EPIDEMIC

BY LEENA YUMEEEN

While controversy erupts over the legalization of marijuana, a far more lethal—and, ironically, far more legal—class of drug has swept America off its feet in the past decades. Indeed, we are in an era dubbed the “national opioid epidemic.” In the 17-year span from 1999 to 2016 alone, overdose-related deaths claimed the lives of 630,000 Americans, the majority of which resulted from prescribed opioids. Although the United States is one of the most developed nations in the world, our opioid overdose rate is more than twice that of any other country. With over 10.3 million patients misusing prescription opioids and 2 million diagnosed with opioid use disorder, citizens across the nation demand answers. How has our public health infrastructure contributed to a substance abuse epidemic?

The tale is one of rampant capitalism, hidden corporate agendas, and a disinterested government. Tracing back to the 20th century, physicians advocated for pain to be recognized as an ailment requiring treatment. Unfortunately, with this new public sentiment came an increase in the use of opioids for treatment. Physicians initially limited opioid prescriptions to cancer pain, but soon many began to argue that non-cancer chronic pain had been left grossly unmanaged by medical professionals. Physicians like Ronald Melzack, harboring sincere concerns, published articles laden with misconceptions regarding the addictive strength of opioids and argued for pain management reform. An opioid use disorder more common, the American Pain Society called for pain to be treated as a “fifth vital sign.”

Heroin swooped big pharma, seizing the opportunity to profit in our privatized system of healthcare. The main culprit, Purdue Pharma, introduced OxyContin to the market in 1996. The primary ingredient of the drug is oxycodone, a chemical derived from the opium, a constituent of opium. Hiding under the guise of benevolence, the company claimed that it had formulated the drug to prevent addiction—that it was the safest, most effective and

humane option for pain treatment. This claim convinced both the public and medical professionals. The drug was approved by the Food and Drug Administration (FDA) in 1995, allowing Purdue to launch an aggressive advertising campaign promoting the narcotic. Efforts were of both macro and microscale: some employees lobbied lawmakers in order to protect the right to sell, while others visited individual doctors to convince them to give OxyContin prescriptions. As Purdue and other pharmaceutical companies weaved their way into hospital infrastructures, the nation became ever more reliant on the painkiller.

It was this internal operation—not foreign drug cartels or the immigrants that we so frequently label—that caused our national opioid epidemic. In fact, pharmaceutical corporations transformed the American commons into the new drug cartels. There was no need for a black market for opioids. Rather, users legally obtained medical prescriptions to sell in their communities. The government, accepting Purdue’s cunning gifts, remained complicit as the nation suffered. To this day, Purdue Pharma continues to invest millions into members of Congress to uphold the company’s power to distribute opioids. Just this year, US Congressman Tom Marino stepped down after the public learned of his central role in creating legislation that interfered with the ability of the Drug Enforcement Administration (DEA) to stop pharmacies from haphazardly selling the drugs.

Our government, however well-intentioned it may have originally been, actively contributed to this new opioid rush. Regulations initially created by the Joint Commission (JCAHO), a U.S.-based non-profit responsible for accrediting and certifying health care organizations, mandated that hospitals and physicians administer pain medication. Subsequently, the medical community continued to heavily rely on opioids. If physicians failed to prescribe such pain relievers, hospitals would suffer from poor patient satisfaction rates and lose federal funding in failing to meet JTC regulations. Decades later, physicians remain pressured

to administer opioids to maintain satisfaction rates for their hospital administrations.

This crisis has expanded far beyond OxyContin. Physicians are currently allowed to prescribe morphine, fentanyl, and codeine, to name a few. Such drugs work by binding to opioid receptors on neurons throughout the nervous system, reducing their relay of pain signals to the brain. Typical short-term physiological effects include feelings of calm and sleepiness, yet chronic usage leads to fatigue, increased sensitivity to pain, depression, and nausea.

Patients prescribed morphine for chronic pain can develop cardiac arrhythmias (irregular beating of the heart). Excessive use of buprenorphine—another opioid used for pain management and treatment for opioid addiction—can lead to acute hepatitis. While opioids are effective for short-term pain management, chronic use quickly deteriorates general health.

In recognition of such side effects and the growing addiction crisis, federal and state governments have been rolling out new legislation to combat opioid overprescription. In 2016, the Centers for Disease Control and Prevention released guidelines for physicians on prescribing opioids, and Massachusetts became the first state to limit the use of opioids for treatment to seven days for patients who are first-time users. Florida quickly followed suit in July of 2018, passing a law preventing doctors from prescribing opioids past three days for short-term pain management. Today, over 15 states have laws limiting

Pharmaceutical corporations transformed the American commons into the new drug cartels.

opioid prescriptions. However, the new regulation certainly has its pitfalls. Some state laws limit opioids prescription so much that patients with severe pain disorders have no access to the only treatment that works. Nervous system disorders, like Complex Regional Pain Syndrome and Central Pain Syndrome, cause pain so severe that patients report “burning” or “pin and needles” sensations. Yet, opioid restrictions make it increasingly difficult for youth and adults suffering from such ailments to gain relief. While cases are rare, the lack of treatment available for such severe pain can be just as tragic as opioid misadventure.

So despite recent progress, it will take much more to create fair regulations and reverse the ramifications of two decades of opioid misadventure. Now that hospitals have reduced opioid prescriptions, they’re also suffering from addiction. In fact, many children were born with NOWS, or neonatal opioid withdrawal syndrome. NOWS occurs when mothers use opioids during pregnancy, and it can only be treated by prescribing drugs such as morphine or methadone to affected infants. Perhaps even more devastatingly, many children are now forced to mature in households where drug addiction is a given. As the FDA acknowledges, “the toll of addiction, in lost lives and broken families, touches every community in America.”

GRIM STATISTICS

130 AMERICANS DIE EVERY DAY OF OPIOID OVERDOSE

10.3 MILLION PEOPLE MISUSED PRESCRIPTION OPIOIDS IN 2018

20 MILLION PEOPLE HAD OPIOID MISUSE IN 2018

808,000 PEOPLE MISUSED HEROIN IN 2018

808,000 PEOPLE MISUSED HEROIN IN 2018

81,000 OF THEM WERE FIRST-TIME USERS

46,000 PEOPLE IN TOTAL DIED FROM OPIOID OVERDOSE IN 2018

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MIAMI'S OPIOID INITIATIVE

BY LEENA YUMEEEN

THE IDEA CLINIC



A few blocks down from the Miller School of Medicine, medical students operate the IDEA clinic syringe exchange program. The setup is humble. A few shipping containers sit on gravel, and students buzz in and out. Yet the program is responsible for bolstering the health of some of Miami Dade’s most vulnerable populations. Volunteers working at the front desk accept used syringes from incoming—often opioid users—and provide new ones, along with any other materials needed to inject safely: cotton pads to filter what’s in the syringe, alcohol wipes, and a sharps container. Another shipping container serves as a clinic on Thursday afternoons, complete with a physical check-up chair and medical supplies in case any patient requires wound care.

The program was established just three years ago following the passage of the Infectious Disease Elimination Act (IDEA), dedicated to “reducing the spread of HIV and hepatitis C” through a harm reduction model by providing clean needles to those who use them. It was an initiative that was championed by Dr. Tooker, a physician and assistant professor at the University of Miami Miller School of Medicine who began to campaign for the passage of the act when he was just a student in medical school. It took 5 years of lobbying the Florida Legislature, but the act was approved and the clinic established in 2015 on World AIDS Day. Her greatest came at a critical point in Miami’s public health crisis. In June of that year, the Florida Department of Health reported that over 36,000 Miami Dade residents presented with AIDS, 29,456 were diagnosed with chronic Hepatitis C, and over 100 had succumbed to opioid overdose. Indeed, as was dramatically stated by John N. Katsoudis of the Florida Medical Association that year, “a deadly opioid epidemic has engulfed our state and the country as a whole.”

Yet, the clinic has been working diligently to reverse the health implications of the current crisis. Not only does the syringe exchange operate to provide sanitary needles to prevent infection, but it hits the road to travel to areas like Overtown and North Miami to educate Miami’s citizens on how to use cleanly and offer syringe exchanges to those who may not be able to travel to the main location. Perhaps most importantly, the clinic has been credited for distributing Narcan widely among the city. Narcan, the brand name for the compound naloxone, functions to reverse opioid overdoses as they occur. IDEA workers have given out more than 2,000 doses since the opening of the clinic, reversing as many as 1,000 possible deaths.

However, as services for opioid users expand, drugs circulating within the supply become increasingly deadly. Overtown has become an infamous hotspot for cheap packets of heroin, known locally as “Nops,” fentanyl, and even carfentanyl, a stronger compound than fentanyl and a key component of elephant tranquilizer. In extreme cases, many patients may not even know what they have used. A large portion of overdoses in Miami are induced by injecting heroin laced with fentanyl, a far stronger combination than pure heroin. Indeed, the rate of overdose had become so overwhelming for emergency responders that during the peak of the epidemic in 2016, *The Miami Herald* reported, “Toward the end of a frenetic summer, Miami paramedics would often have one paramedic on an overdose in the morning, then pain in the afternoon after the user walked out of a hospital.”

Such stories prove the need for the IDEA needle exchange service and the attention it provides to Miami’s most neglected subgroup. A large portion of exchange participants are homeless and lack access to basic healthcare. Other groups disproportionately affected by the opioid crisis, and, in turn, the HIV epidemic include gay men, Black men, and Hispanic men. But no matter the life circumstances of those who come in, the medical students are quick to provide non-judgmental care. “I think one thing that we always stress is that it’s not because they’re gay or because they’re Black that they’re at risk but because of all the structural factors and historical factors that come into it,” says Maggie Glisco, a medical student who served as project manager for the clinic during the last academic semester.

Beyond providing individual preventative care for patients, the clinic also investigates community-wide trends in HIV infections and opioid overdoses. In fact, just last year, the clinic researched a spike in HIV cases in the region by attempting to identify cases of “zero conversion”—a term denoting those who test positive for HIV but had previously tested negative at the clinic—and mapping connections between those who tested positive. While many of the cases proved to be coincidental rather than correlated, the clinic intervened successfully before the trend accumulated into a much larger outbreak. It’s work like this that makes the clinic so trusted within the community. And while patients are turned away or frightened of general hospital settings due to the stigma surrounding drug usage, many appreciate the clinic as a reliable source for critical healthcare because of its long-standing history.

INTERVIEWING MIAMI'S HEROES

Our staff interviewed Marcus Castillo and Maggie Chiseko, two students at the Miller School of Medicine who volunteer at the IDEA clinic, for the creation of this article. Maggie answered the following questions regarding the severity of Miami’s opioid epidemic.

Why do you feel that the opioid crisis and high rates of HIV infection hit the Miami community so hard?

“There’s a lot of factors that come together, especially in Miami and in the Jackson Hospital healthcare system. Some of it has to do with education—whether that’s an understanding of addiction, HIV, or sexual health practices. There are also cultural factors. Even if people want to get information about this kind of stuff, a lot of cultural factors seem to tie in to people just not talking about it, so people don’t know where to get the information that they want. It also has to do with structural factors—when you’re living in poverty, or you’re homeless, or you’re faced with racism, it makes it a lot harder to access the medical care and the services that you need to keep yourself safe and keep yourself healthy. People often cope with those difficulties in many ways, including opioid use.”

What kind of stigma do drug users face and how do you believe that impacts how they seek treatment?

“Commonly, people who use drugs face lots of stigma in medical settings. They’re seen as “drug seekers,” or that their pain isn’t real. People don’t want to give them medication that would help with withdrawal because they think they deserve to be suffering or that they’re not worthy of care. So people who use drugs often receive poor care and face a lot of discrimination in medical settings. It’s just little things like people calling them “addicts” or “junkies” or using lots of these derogatory terms to refer to patients. [But even if the patient can’t hear [physicians] using those kinds of terms, using that kind of stigma towards your patients has been shown to lead to poor healthcare outcomes, whether it be not getting the pain control that they need or just in general not getting the care for what their medical problems are at the level that they should be because of the stigma surrounding their drug use.”

Do you feel that this stigma that people face prevents them from going into the hospital as much as they should?

“There’s a lot of people who might be afraid that [they] have abscesses or other medical problems that would be best if they could get it treated early, but they don’t feel comfortable or they get scared about going into the hospital. And whether that’s because of stigma, or because they know they’re going to have to wait a long time and they’re going to get sick they wait and they don’t want that to happen, or whether they’re afraid of potentially encountering law enforcement and running into issues with them—there’s a lot of reasons that people might be afraid to go to the hospital and go to the ER, and it’s definitely very common among our patient population. People would love to get medical care and see a doctor but for all these reasons it’s really challenging or scary for them.”

What do you think that we should be doing to prevent overdoses from drugs like heroin or other opioids?

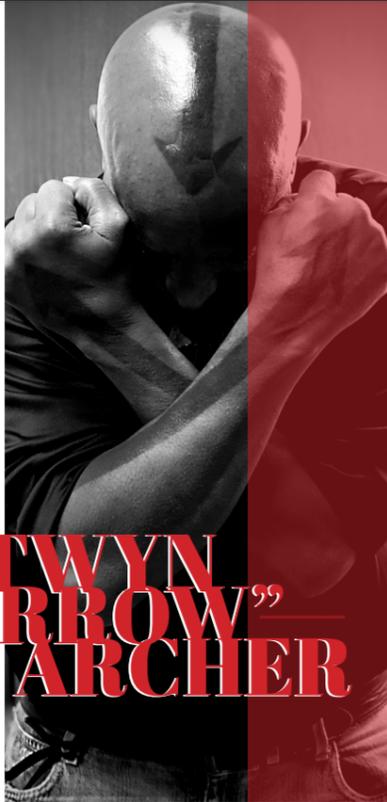
“One of the things that the IDEA Exchange does that has been a really valuable tool in preventing overdoses is distributing the drug naloxone by the brand name Narcan. This drug is really useful because it can reverse an overdose that’s in progress—it’s an antagonist of the opioid receptors. The drugs that the exchange distributes in [the form of] a nasal spray so you don’t need to need anything about how to use it other than to stick it up someone’s nose. It’s important to make this drug available and get it into people’s hands, especially those who are using drugs.”

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"I was dead; I was purple. She resuscitated me."

After over 40 years of heroin use, Chetwyn "Arrow" Archer had made a decision—his road ended here. He laid on the ground, taking his last few fluttering breaths. Overcome with hopelessness after the loss of his partner, Arrow had just shot seven bags of heroin with the intent to overdose. On a hunch, Emmy Martinez, a volunteer from the IDEA Exchange needle exchange clinic, stopped by the place where Arrow was staying to check in on him and make sure everything was okay. Instead, she found him unconscious. Knowing she was the only thing standing between her friend and death due to overdose, she injected him with Narcan and was able to successfully resuscitate him.



CHETWYN "ARROW" ARCHER

BY MARISSA MADDALON

"I got shot."
Arrow described his descent into addiction as a fitting pattern seen far too often today—through the use of painkillers. Years ago, when he lived in the home, Arrow was shot and prescribed Placidyl, a common sedative at the time. Upon finding it was less and less effective over time in treating his pain, Arrow turned to an old friend from his time in the military, who offered something a bit stronger. His friend helped him shoot heroin for the first time, and as Arrow put it, "it was a love affair after that."

"You're living for the next high."

At one point, Arrow was living under a bridge in Miami, weighing only 115 pounds. Arrow details his day-to-day experiences during this time as bleak, with one main purpose—to get high. As he put it, heroin causes people to cycle between blissful highs and devastating lows, but it is always the sweet sensation of the high that would call you back. Arrow recounts, "you go out, get high, and then you produce whatever it is that you need—whether it's stealing stuff from a store, selling dope, selling your body—whatever it is you have to do to make the money to get high." As the city began to crack down on the homeless in particular areas, such as underneath bridges, Arrow—homeless and in need of a place to stay—was offered a spot at the Camilla House by Dr. Hannet Tookes III, the founder of the IDEA Exchange. Shortly after, Dr. Tookes introduced Arrow to a rehabilitation program.

"I was done."

After being resuscitated after his near-overdose and having gone through detoxification, Arrow spent 45 days on the streets surrounded by the temptations he knew all too well. But, as he put it, he was simply "tired"—tired of sleepless nights, tired of the "fake respect" of friends who would betray and rob him for that next high, and tired of losing those most important to him, including his partner, whose ashes he still carries with him. Describing his disillusionment with the life he had become accustomed to, he states that although "the high is the best thing ever, I wouldn't wish it on anyone." Arrow recognized that he was

ready to move on and felt a desire to change his future, and acknowledges that others should go through a similar process. Arrow personally gives credit to Dr. Tookes and the team at the IDEA Exchange as his main saviors.

"They relate to me. If I can recover, so can they."

Arrow's first visit to the IDEA Exchange was when it was in its infancy; the clinic used to give out money to sign up and partake in the needle exchange, which is how Arrow first discovered the clinic. However, since entering recovery, Arrow has found a new mission in recent months through working with the IDEA Exchange's other programs and partnerships, which are focused on education and rehabilitation. Through the constant interactions he had with the volunteers and staff since the clinic's founding, Arrow was able to form trusting relationships with them and was eventually able to enter rehab. Now, his goal is to do the same, to help others who are in the situation he was once in.

Arrow's path to recovery serves as an inspiration for people he meets through his work at the clinic, many of whom he had "shot dope with or sold dope to" in the past. Despite using for over 40 years, Arrow was able to make a 180-degree change in his life, and knows that others around him who are suffering from addiction can "see the change." With this mentality, he maintains confidence in his ability to both support those making a transition into rehab and save lives if the need arises. As a reminder of the power and responsibility he now possesses, Arrow keeps count of every life he's saved. Since his personal recovery, he has resuscitated 158 people.

"We stop a lot of things from happening."

HIV and Hepatitis C are bloodborne diseases that can be spread through needle sharing during intravenous drug use, as there are always trace amounts of blood left in the needle. As Arrow highlights, in addition to the needle exchange services, the IDEA Exchange also offers testing and treatment for HIV and Hepatitis C, giving individuals who have tested positive for these diseases the opportunity to start on antiretroviral treatment. This is crucial to preventing the spread of the diseases, as once a person's viral load is undetectable as a result of treatment, the virus is untransmittable to others. In addition, Arrow stresses the importance of the clinic's education campaigns, especially those regarding new synthetic opioids such as fentanyl and carfentanyl, which are even stronger and easier to overdose on than heroin. As the clinic continues to expand its reach and address the infectious diseases here in Miami, its outreach programs serve as a further testament to the good the clinic does for the population it aids.

"Relapse is a part of recovery."

Arrow believes recovery is less about leaving something behind you entirely, and more about finding the resources that empower you to fight another day. Arrow chooses not to use the word "quit," as he's seen others dragged back into substance abuse. Instead, he prefers to view every day as a new opportunity because he understands the gripping power of addiction, something he believes should never be underestimated. As for Arrow's goal, it's simple—to "keep having more today." To this day, he has had nearly a year and a half of them.



Detoxification is a difficult process. Relapse rate after initial detox ranges from 72% to 88% after 12-36 months.



THE FAST AND

TRUE OR FALSE: Breakfast is the most important meal of the day.
Most people have been consistently reminded since early childhood that breakfast and subsequent small, frequent meals are essential to a healthy lifestyle and optimal productivity. However, in recent years, nutritionists and scientists have called these seemingly factual eating times and patterns into question. Currently, one of the world's most popular fitness trends, a diet termed intermittent fasting, disputes this age-old adage about breakfast and metabolism maintenance. This new eating trend involves repeated cycles of fasting and eating—even feasting. One of the main attractions of intermittent fasting is that the

phenomenon does not restrict which foods to eat, but rather the times at which food is eaten. Several studies show that these alternating cycles of fasting and feasting can lead to weight loss, lean muscle growth, improved metabolic health, disease prevention, and increased longevity.

Current University of Miami student and Exercise Physiology major, Sean Walson, personally witnessed the benefits of intermittent fasting by watching his sister try the eating plan. He said, "she loved it because as long as you eat all your calories in the window, you can still eat your favorite foods." However, Walson highlighted that intermittent fasting may not be suitable for everyone. He states, "For me it's not the best choice because I like to snack at all hours. In contrast, my sister prefers eating larger meals and she felt that it would be easier to abide by."

There are several different methods of intermittent fasting, the most common of which, dubbed the 16/8 method, involves 16 hours of fasting with 8 hours of caloric intake. The key to this dieting pattern is that by purposefully decreasing the window of time in which food is ingested, an individual ultimately consumes less calories in a 24-hour period.

In BIL 360 (Comparative Physiology), Professor Dubois teaches that immediately after eating a meal, especially one heavy in sugars and carbohydrates, an individual's blood glucose levels rise and insulin is secreted. Recently ingested meals provide the body with a readily available supply of glucose and glycogen to use for energy—as opposed to stored fat. The human body will spend several hours processing the food and utilizing these easily accessible energy reserves. After



THE FEASTING

—Carolina Mallar

fasting for several hours, the body no longer has fresh and serviceable glucose and glycogen and eventually draws from fat cells for energy. Decreased insulin sensitivity is often linked to heart disease, obesity, and diabetes. In contrast, proper insulin production and sensitivity are linked to weight loss and muscle creation. When a meal is once again consumed after a period of fasting, insulin is produced. During this time, the body is most sensitive to insulin and possesses an increased ability to efficiently utilize the meal. This is especially true after a workout or strenuous activity when glycogen levels are depleted. As a result, the meal consumed after a workout and fasted state will be utilized most efficiently by restoring depleted glycogen and subsequently less likely to be stored as fat. The intake of these larger and more satiating meals may result in increased vitality and productivity. Furthermore, during periods of fasting, growth hormone is increased. Thus, the period of fasting followed by balanced and nutrient-rich meals, as suggested by intermittent fasting, result in increased growth hormone and insulin sensitivity and essentially prime the human body for fat loss and lean muscle growth.

When asked about traditional dieting, local personal trainer, Karina Figueroa, stated that "individuals should strive to 'make lasting and realistic changes to their eating habits,'" and highlights that "usually people who start diets do not

follow them through or simply revert to their old habits after their goal weight is reached." The primary reason that intermittent fasting has gained such momentum among the health and fitness community is that it does not require individuals to renounce the pleasures of eating their favorite foods. She says that the benefit of intermittent fasting is that there is no need to "restrict food choices," and purposefully include or exclude macronutrients, but reminds readers that the "goal should be to develop healthy relationships with food and their own bodies," and that "everyone should be incorporating some form of exercise and movement in their life, that they enjoy, to complement their healthy eating habits."

From an evolutionary perspective, eating several meals per day is a relatively new development. Intermittent fasting, although fairly recent named, is not likely a new phenomenon. Our hunter-gatherer ancestors were likely forced to undergo these periodic cycles of fasting and feasting as a result of their way of life. Similarly, religions have long maintained traditions of fasting and linked them with increased spirituality. Thus, the seemingly newfound eating pattern, with its multitude of health benefits, may simply be the way humans were meant to eat.

So, enough with the low-fat, no-carb, gluten, lactose and fun-free restricting diets. Intermittent fasting allows for proper nutrition, enjoyable indulgence, and a healthy lifestyle.



COFFEE



Everything to know about your cup of joe

by Gaethika Kataru

Illustration: Megan Burns

Design: Anuj Shah

Coffee is by far the world's most common and widely used psychoactive drug. It is second only to oil as the most valuable legally traded commodity in the world. Coffee, in particular, is a worldwide phenomenon. Nearly every culture has its own traditional way of preparing coffee, and most countries now contain large coffee brands.

Coffee's early beginnings are shrouded in lore. An Ethiopian legend describes how coffee was discovered by a goat herder who noticed his goats were unable to sleep at night after eating a particular type of berry. The use of the "coffee berries" spread quickly via merchants and travelers to the Arabian Peninsula. There, it became integral to social settings at coffee houses, where people gathered to listen to music, play chess, and exchange news. By the 1600s, trade had brought coffee to Europe, where it was so well-loved that it received official papal approval. Coffee houses all over Europe were dubbed "penny universities" because anyone could grab a cup of coffee for a penny and engage in stimulating conversation. In the New World, coffee didn't fully take hold until the Boston Tea Party. Disgruntled colonists viewed taking tea out of their daily diet and replacing it with coffee as their patriotic duty, part of a momentous rejection of all things British. Later in American history, the drink was used to raise morale in the Civil War, providing soldiers with an energy boost and the strength to carry on afterward. By the late 1800s, large companies were capitalizing off coffee's popularity and selling the product to western cowboys and Californian gold diggers alike. Now, this drink is used by the majority of Americans to wake up and go to their rise to five jobs.

Coffee works well inside the body because it is both water- and fat-soluble,

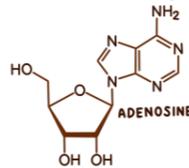
which also contributes to its unique ability to penetrate the blood-brain barrier. Contrary to popular belief, caffeine itself works differently than what we normally consider a stimulant. Rather, it disables the brain's natural brake system. Structurally, the molecule is similar to a naturally occurring molecule called adenosine. But whereas adenosine is produced throughout the day and locks into adenosine receptors in the brain to trigger feelings of tiredness, caffeine works by blocking the adenosine receptors, speeding up nerve activity, and keeping the drinker alert for a few hours. Surplus adenosine begins to build up in the brain, serving as a signal to the adrenal glands to produce adrenaline, another stimulant. In addition to this, the brain's natural stimulants like dopamine work more effectively when the adenosine receptors are blocked, boosting the feeling of alertness. This concoction of chemicals in the brain effectively keeps a person awake and alert, sometimes to the point of anxiety. With consistent use, caffeine can negatively affect one's cardiovascular system. These caffeinated consequences include increasing blood pressure and heart rate, as well as occasional arrhythmias.

A constant and regular intake of coffee leads to an increase of adenosine receptors and a decrease of receptors for various stimulants in the brain, as the body seeks more inhibitory signals to return to equilibrium. The telltale signs of withdrawal—that "don't speak to me until I've had my coffee" mood we may experience—are made worse by the fact that the brain can quickly build up a tolerance to the high caffeine levels in coffee. After a coffee habit has been built, it is similar to other addictions in that it is likely that symptoms of withdrawal can be seen when it is stopped abruptly. Headaches, abnormal blood pressure, extreme fatigue, and a decrease in sociability are the most common signs of withdrawal. Depending on the individual, withdrawal symptoms can also include stomachaches, joint pain, and decreased motor activity. These symptoms are wide ranging and vary amongst individuals, because each brain tries to adjust to the lack of caffeine differently.

While building a tolerance to caffeine, receptor levels within the brain increase or decrease to adjust for the constant consumption of coffee. When that caffeine is no longer present, the precarious equilibrium the brain worked so hard to



build it once again thrown off. Excessive adenosine receptors are not being blocked by caffeine molecules, and so the naturally occurring adenosine within the brain fills that spot. This increases fatigue and prompts the other symptoms of withdrawal to kick in, such as excessive feelings of drowsiness. The receptors of various stimulants whose levels were adjusted are now not being used as frequently or as effectively. This chain of events causes chemical chaos within the brain. Of course, the regular cup of coffee in the morning can serve as a "band aid" solution to the problem, but will not fully subside the chaos. Only completely breaking a caffeine addiction can do that. Just like any other addiction or dependence, it's difficult to quit cold turkey. A gradual decrease in consumption over the course of a few days or weeks will allow the brain to remove and replace the necessary receptors. So what do scientists recommend to people looking to quit altogether? Some estimates say that going one to two weeks without caffeine is needed to adjust back to the normal balance



GENERATIONAL TRAUMA & YOUR GENES

by Geethika Kataru
Design & Illustration:
Emily Fakhoury



THE HUMAN BODY IS A MASTER OF MEMORY. Its ability to carry information through time, and even pass it on to future generations, is a unique one. From an evolutionary perspective, the way we remember and learn from extremely stressful situations is particularly important. However, the scars of traumatic events are more than just skin deep—they affect the molecular makeup of cells, right down to their DNA. Environmental and emotional stressors leave marks on the chemical coating of chromosomes in order to control the expression of genes needed for immediate survival. These changes above the DNA level can then be passed on to future generations. While this may seem like a claim of Lamarckian proportions, the inheritance of stress has been seen in animal experiments, and many scientists believe that phenomena is also relevant in humans. Incredibly, the descendants of those who lived through traumatic historical events tend to show the symptoms of their ancestors' mental turmoil.

The theory that suggests how trauma is passed down from one generation to the next is called the transgenerational transmission of trauma (TTT). TTT proposes that traumatic environments can lead to a predisposition for post-traumatic stress disorder (PTSD) in future generations, since more than 90% of the variance associated with PTSD has a heritable

component. One of the first epigenetic studies about transmission of trauma was performed on the children of Holocaust survivors. Many of them reported having vivid and terrifying dreams, being unable to cope with daily stress, and falling easily into depressive episodes. Although they themselves had not lived through the horrors of World War II, they seemed to be predisposed to anxiety and depression. They showed distinct signs of being traumatized, especially when compared to their peers and other members of their generation who could be considered "normal" or "healthy." For these children, inheriting the subconscious mind of a parent who had survived the Holocaust was detrimental to their development in a way that they could never have anticipated.

Calculating exactly how epigenetics—the study of heritable changes in gene expression, rather than in the genetic code—works in humans is complicated. Experimental data is difficult to measure in human subjects because of challenges in tracking and predicting such variables across multiple generations. Model systems are set up using other mammals, as transmission of trauma is not limited to humans. In one study, male rats were conditioned to be fearful of a specific smell, as each time they were exposed to this smell they would endure a short electrical shock. The conditioned rats showed a change in DNA methylation, specifically of the M71 receptor, which is involved in sensing the odorant molecule acetophenone, a molecule used heavily in resins and fragrances. Surprisingly, the resulting changes in DNA methylation were seen not only in the brains of the conditioned rats, but in their sperm as well. Therefore, when they were mated with control females, the offspring in the next generation showed the same changes in the methylation of DNA, and similar fearful behaviors to the odors that their parents were conditioned to be fearful of. Similar results were found when in vitro fertilization was used to implant the experimental sperm in control females, further implying a biological, but non-DNA based, inheritance of the stress from the

THE SCARS OF TRAUMATIC EVENTS ARE MORE THAN SKIN DEEP — THEY AFFECT THE MOLECULAR MAKEUP OF CELLS RIGHT DOWN TO THEIR DNA

initial generation of rats. The very same concept can be applied to generations of human beings. The models set up in rats and other mammals provide insight into the way that epigenetics works to pass on the effects of trauma in humans.

The applications of transmission of trauma can often be seen in racial and ethnic minorities. The Native American population, in particular, struggles under the weight of historical trauma, from colonization to the pressures of modern day reservation life. Through the loss of land, language, and culture, as well as disproportionately suffering from abuse and discrimination, the Native American population has faced chronic stressors that overstimulate stress response pathways built into the neural and endocrine systems. As a result, we observe increased DNA methylation of endocrine regulator genes and serotonergic genes, as well as decreased DNA methylation of inflammatory genes in the Native American population. These changes in gene expression lead to many health disparities, including increased rates of psychiatric disorders, drug and alcohol dependence, cardiovascular disease, and obesity. It also leads to a relatively shorter life expectancy. Because the trauma being inflicted on the Native population continues to this day, the effects it has on their epigenetics will continue to play a large part in affecting the physical and mental health of future generations.

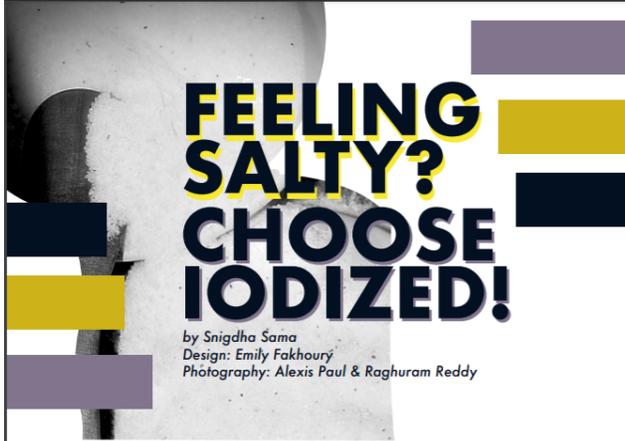
The impact of the idea of transgenerational transmission of trauma is immense and far-reaching. It suggests that historical events such as colonization and slavery, through the lasting epigenetic scars they've left on minority groups, have played a role in establishing the socioeconomic differences and other health disparities we see in those same marginalized groups today. While the causes of these observed effects are undoubtedly partially social, more and more

experts today agree that the epigenetic effects from past trauma have also played an important role in shaping the life views, coping abilities, and overall adaptability of the descendants of marginalized populations. Groups and communities who have been pillaged, exploited, or otherwise disenfranchised are still recovering from these tragic events.

A prime example is the "comfort women" of the Japanese Imperial Army during World War II, who were subject to rape and torture, the effects of which are still seen to this day in their descendants and are attributed to epigenetics. On an individual level, a stressor as basic as poverty can result in ingrained, multigenerational damage. When marginalized populations, even in the U.S. and here in our local community, are consistently exposed to disease, poor environmental conditions, unsafe home and work lives, and food insecurity, these factors compound on top of each other and can lead to a host of epigenetic changes, leaving descendants worse off and with less capacity to deal with the same stressors previous generations were exposed to. The result? Generations after generation of unrelieved trauma.

We must remember that the health disparities of those who have faced historical trauma can be passed on to their descendants and will continue to alter the way their body functions, generations after the initial stressor. Our environment, built in part by these historical events, shapes our physical and mental health, and epigenetics can help us understand how the common experiences of marginalized people will continue to affect them and their children. Quicker than ever before, we are learning that the social and economic repercussions of historical wrongs are written into the molecules that build us. Developments in epigenetic research will shed light on these mechanisms, and are eagerly anticipated not only by the victims of today, but also by the children of tomorrow.

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FEELING SALTY? CHOOSE IODIZED!

by Snigdha Sama
Design: Emily Fakhoury
Photography: Alexis Paul & Raghuram Reddy

For many Americans, getting groceries involves a simple drive or an eco-friendly walk to the nearest supermarket. As we calmly stroll through the aisles, we navigate towering columns of miscellaneous products in search of everything needed to successfully stave off hunger and starvation. As we pass the irresistible aisles of chips and cookies, we finally arrive at the mouthful of both heart function and simultaneous dysfunction (in excess) salt.

In this moment, comes the big question: iodized or regular salt? Wherever I go shopping with my mom, I watch as she unflinchingly grabs the box containing iodized salt.

What is iodized salt, and how is it different from its regular counterpart? Iodized salt is table salt mixed in with small amounts of the trace element iodine. The element iodine is an essential micronutrient that is naturally present in some foods, especially in seafood and dairy products. In the small amounts that it is needed, iodine plays a crucial role in human metabolism and mental development. The thyroid gland, a butterfly-shaped organ at the base of your neck, releases thyroid hormones that control metabolism. Iodine is an essential part of these hormones. Iodine deficiencies lead to thyroid enlargement and can cause a lump called a goiter to appear.

While its specific role in thyroid hormone production was only discovered within the last century, iodine's medicinal capabilities were realized far earlier. Chinese writings dated back to 3600 BC recorded

decreases in goiter size upon ingestion of seaweed and burnt sea sponge, which contain large amounts of the element. Several thousands of years later, in 1819, a Swiss physician named J.F. Coindet used iodine tincture (an elemental iodine in solution) to reduce the size of goiters in his patients. Iodine's seemingly miraculous propensity to heal led to physicians prescribing it for countless other afflictions ranging from inflammation to gangrene.

Even more significant than its effects on thyroid function, iodine's role in fetal development is crucial, so much so that pregnant women are advised to take supplements if their iodine levels are flagged. Iodine deficiencies are associated with stillbirth and miscarriages. Furthermore, children of mothers with severe iodine deficiencies tend to have intellectual disabilities and growth disorders. This is not limited to extreme cases, as even slight iodine deficiencies can contribute to a lower IQ. In a study done in the 1930s, researchers compared the intelligence of children born just before 1924 (the year the iodization of salt began) and those born thereafter with a standardized intelligence test. In the initially lower-iodine areas, the introduction of iodized salt had amazing results: men from this region born in 1924 or later had an average IQ that was 15 points higher than that of their predecessors.

For Americans, iodized salt is so commonplace that we barely notice the ramifications of an iodine deficiency. During the 1920s, widespread iodization of salt began and this largely improved thyroid

function and reduced goiter appearance for millions of Americans. While iodine deficiencies were common a few generations ago, most middle-aged and younger Americans have never experienced it. The implementation of salt iodization through effective legislation has drastically reduced goiter occurrences and increased IQ values in adolescents.

However, this is not the case for many other countries. Iodine deficiency still affects up to 2 billion people worldwide, including 283 million adolescents. Currently, iodine deficiency is the main preventable cause of brain damage in children, and so a lack of iodine has disastrous consequences for these iodine-deficient countries. In 2003, the World Health Organization (WHO) conducted a study on the levels of urinary iodide in populations of different continents. Whereas only 9.8% of the population of the Americas were found to be iodine-deficient, this number was 42.6% in Africa, 39.8% in Southeast Asia, and 56.9% in Europe. As stated above, such low levels of iodine have the capacity to severely damage thyroid function and brain development. Moreover, while the presence of overt hypothyroidism (not caused by any sort of iodine deficiency) is roughly the same throughout the world, much higher rates of hypothyroidism correlate with lower iodine consumption.

In Pespogiano, a notably iodine-deficient village in southern Italy, the prevalence of hypothyroidism was observed to be twice the value of those iodine-sufficient countries in 1999. Many factors, such as living in areas in iodine-deficient soil, consuming goitrogens (which reduce intake of iodine in thyroid and include popular foods like soy, cabbage, and broccoli) and lacking adequate knowledge of the importance of iodine are the root causes of these deficiencies. Mandated salt iodization has solved this problem for some, but in many other areas, inadequate legislation and even less enforcement result in iodine deficiencies continuing to be an issue.

While it is only considered a micronutrient, iodine deficiency has effects on a population that certainly cannot be considered microscopic. From lowering IQ points to causing stillbirths, iodine deficiencies result in severe problems for those citizens living in iodine-deficient regions. The numbers of these regions are disappointingly high, and it is paramount that great attention be brought to this disparity.



FROM CARIBBEAN CROP TO YOUR CUP

RESEARCH PROFILE ON EZRA REMER

BY ANASTASHA PLOTNIKOVA
PHOTOGRAPHY: DHARA PATEL
DESIGN: AARON DYKHORIN

What do hurricanes and coffee have in common? As it turns out, senior Ezra Remer has the answer.

Ezra is the founder of the Dominica Coffee Revitalization Initiative (DCRI), a non-profit organization founded in 2017 to economically revitalize a small Caribbean island named Dominica following the impact of Hurricane Maria. Naturally, I had to ask how Ezra knows about this lesser-known island nation, let alone its potential for growing specialty coffee.

"I have a background in coffee—I've been involved in the specialty coffee world since I was 14," Ezra says. Back in his hometown of New Orleans, Ezra gained invaluable experience and insight into the coffee industry by working in specialty coffee shops, and it was this experience that made him manager of The Billy Goat coffee stand in the School of Architecture courtyard. However, this was just one piece of the puzzle.

Ezra is also an avid traveler, and was first captivated by the natural beauty of the mysterious island when he read a travel book his step-grandmother, a former writer for the *New York Times Travel Magazine*, gave him. "I was always into islands," he states. "I used to study these pages as a kid, but I've yet to find a place as stunning as Dominica."

Since then, Ezra has had the chance to step into the pages of his book and experience the island's lush forests, massive waterfalls, towering mountains and volcanoes that rise out of the ocean. "Amazingly, according to Ezra, the 36-mile-long island hosts nine potentially active volcanoes. Yet, as obscure as it may seem, Dominica's history was a complicated history of colonization and intrusion.

Dominica's nature has determined much of its history. While Dominica's rugged topography never allowed the French and British colonizers to grow sugar or cotton or other "cash crops," Dominica instead became the British Empire's second largest producer of coffee around the 1870s. "Dominica is naturally suited for growing coffee because of its mountainous features," Ezra explains.

Coffee is not currently a staple crop, however, as a disease, coupled with the dissolution of coffee agriculture, resulted in a dramatic drop in the island's coffee exports from 2 million tons

to just 3,000 tons over the course of a few years. Since then, the island nation began cultivating bananas, and while they were considered "green gold," their cultivation has the potential to not only dramatically reshape the land, but also pollute the clean waterways via application of herbicides and pesticides.

Then, during Ezra's sophomore year, Hurricane Maria hit Puerto Rico as a category 4 hurricane, devastating the island. Just before hitting Puerto Rico, Maria took on the island nation of Dominica as a category 5 with wind speeds up to 180 mph.

"While the world responded to Puerto Rico's crisis," Ezra explains, "Dominica, which no one hears about, was left out of the equation."

There is a major reason why most people have probably never heard of Dominica, and that's because the island is not a tourist destination. This means that its inhabitants heavily rely on agriculture. "Over 90% of houses were destroyed," Ezra points out. "Their livelihoods rely on the land, but that's the first thing to go when a hurricane hits."

Having been through Katrina when it decimated New Orleans in 2005, Ezra realized that the key to hurricane recovery is not just to provide short-term solutions like rebuilding houses, but to provide long-term solutions as well. So, determined to help Dominica find long-term success, Ezra did his research and discovered the powerful little island's huge potential for growing coffee. As it turns out, coffee crops weren't destroyed by Maria like the bananas were, because coffee is a low lying plant. Moreover, the coffee plants actually thrive when placed under the canopy of a "psado" tree native to the island. This tree hosts symbiotic rhizobia, bacteria that act as natural nitrogen fixers and supply the nearby soil with essential and biologically accessible nitrogen. This observation by farmers has been culturally significant even before they knew why coffee grows where it does. As Ezra describes, "this is a prime example of [taking] a cultural legacy, [applying] modern science, and creating something that can benefit the forest and the coffee."

A few months after Maria, Ezra reached out to friend Michael Svarzin, a Dominica native and Director of the Tantan Village Development Corporation. Within the next year, Ezra and his group had landed on Dominican land. While there, the DCRI

group filmed interviews and spoke to the people of Dominica about their needs. Filmmaker Alex Musca got involved with DCRI after incidentally meeting Ezra at the Billy Goat. If there's anything that Ezra, a communications student, knows more about than coffee and telling a great story, it's people and how to talk to them.

"The project, at its core, is an economic, cultural, and societal effort," Ezra explains. While the Dominicans were friendly and open to talk, it can be hard to convince a native Dominican to put their faith in an abstract idea. According to Ezra, "why do care about the forest if I can't make a living for my family?" is what the farmers would ask, but "I would respond with 'we can do both.'"

Since the initial visit, Ezra has already visited Dominica two more times, and has just returned back from his most recent visit in January. During this trip, the group selected sites to test plots of land in coordination with two young Dominican-American and Canadian organic farmers. The goal is to show farmers that growing coffee is economically feasible, and doing so will encourage other farmers to try it out.

"We're not coming in and telling people what to do—it's a locally led initiative," Ezra says. In this way, the island nation will be able to engage in sustainable agriculture, strengthen their economy, and even enhance their resilience to climate change and decrease pollution by cooperating with their local ministry of forest and agriculture.

"Agroforestry is a unique way to preserve the island's natural beauty while also providing a source of income for the farmers, and this is something that can stand the test of time," says Ezra, who is also working with the World Coffee Research organization, a non-profit organization dedicated to developing more vigorous hybrid coffee varieties to improve the quality and quantity of products in the face of a changing climate. With his sights set on Dominica, Ezra is fully committed to pursuing the project following graduation, and is currently a semi-finalist for the Fulbright Scholarship.

Through his project, Remer also stresses the significance of sustainable agriculture on the global scale, which is something he keeps in mind every day as a key member of Student Government's Eco Committee.

"We will sink if we don't adapt."

"THIS IS A PRIME EXAMPLE OF [TAKING] A CULTURAL LEGACY, [APPLYING] MODERN SCIENCE, AND CREATING SOMETHING THAT CAN BENEFIT THE FOREST AND THE COFFEE."

It's the one thing, as artists, that we get so hung up on... "Imagine Dragons' first name. Dan Reynolds and I asked the meaning of the band's name. It's, each episode for us five days all over the world and quite possibly that's... Look, the band's name is the only thing that's been themselves as an analogy for a lot of things. Dan Reynolds & I thought, as anything involved in January 2013.

I caught up with Reynolds and asked him about the band, their career, their place in the world with the "Imagine" name, their future, and how "It's Time" manages to stay and even when played all over the world on my favorite old-school radio.

"It's Time" is on your latest EP. Can finding more and more bands prefer to release an EP or a couple EPs throughout a year or two rather than releasing a full-length album. Why do you think that is? Is it because an EP is more immediate?

Honestly, I'm not afraid of doing the first album. You only do a first album once and you have to live with it forever. So many bands I listen to have first albums that are not great. I really wanted to make sure I did my band had really developed and understood who we are before releasing a first album. Some bands do it overnight, and we've been a band for three years. I took three or four EPs to determine who we are. We've been growing, and we've started to have an album out in the fall. We'll go into the studio at The Palace to begin in June.

It'll be nice to get in the studio I'm sure, how's been on the road for a while. I take it a game well?

It's been incredible. We've been on the road two months now, and we've played more shows than ever before and we're loving every minute of it. There's no place where we feel more at home than on the road. We've been on the road for three years, and people are coming out and connecting with our music. There's really an incredible energy in the live.



Look, getting back to "It's Time." It really feels like a breakthrough for you guys. Do you get that sense? I know "HEV" just gave you guys for the song's music video.

I always would dream of making music videos. Whenever I make music, I always have a visual in my mind. I always see things. We definitely see the more creative and videos — the ones that get you thinking how it related to the song. There's something about people I love. When we were making the video for "It's Time" I wanted to make it a little more abstract. It's a song that people can interpret in so many ways. I love it when artists say what it really means. It really is unpredictable as it. I always like to leave art and music open to interpretation.

Like your band name?
 "Totally. We were very happy that we were able to use the name "Imagine Dragons" as a band very quickly. When you think of bands like Foo Fighters and Smashing Pumpkins the name means less. The name ends up being defined by the music at the end of the day.

"Imagine Dragons is an anagram for another phrase. We are sworn to secrecy about it."

WHY LEADERS FAIL

WHEN THE BEST STRATEGIES CAN'T GET IT DONE

by John Bollen

A recent study reported in the *Harvard Business School Press* showed that only one in 10 large company CEOs achieve their growth targets. Considering the enormous amount of time and resources spent annually creating the perfect strategic plan, those results point to a fundamental and persistent gap between leaders who create strategic plans and the people who are expected to execute them. Why not then, that leaders who build an action-oriented strategy to improve their people and eliminate their weaknesses, for two often end up failing their own plan before the year is out?

While each situation differs in some degree, consider these five common reasons good strategies don't lead to good results:

1. THE YM THE BOSS, SO IT WILL GET DONE? FALLACIES.
 When the job title gets in the way of reality, failure is one to watch. The label on your business card — CEO, president, VP, director, senior manager, whatever — should be a list of responsibilities. No matter how high-faloot a strategy is — demonstrating influence and shared responsibility across — execution of the plan is only as good as the highest bottleneck in the system. Do you want to win? If so, find where the business process is inconsistent and focus your company's resources to eliminate the biggest. That old adage, "a chain is only as strong as its weakest link" is as true in business as it is in life.

The first business strategy balances agreement with participation. The handling part of being a leader is that your firm — and your organization's — lies in the hands of their average year team. This doesn't mean a leader can't be forward-looking and motivational, but that is an essential responsibility of a leader is to outsize the organizational ability to include everyone's ideas and aggressive targets. The irony, though, is that your job function is more closely related to the almost every member of your team than to your executive aspirations and best strategies.

The "strategy-to-execution" process breaks down when the strategy is an operating, leader-centered document rather than one that clearly defines the value the company provides both internally to the entire team and — more

important for a leader isn't, "What do I want to do?" but rather, "What can we get our working together?"

2. IT'S ABOUT THROUGHPUT NOT INPUT.
 Laying out an impressive agenda sounds good to senior managers, shareholders and Wall Street, but ultimately it's what comes out the end of the pipe that matters, not what you can put in the front of it. The work and time — those that need to be spent — the energy and take action — look at broad, sweeping strategic plans with solid goals and clear signs of direction. When the organization concentrates on creating timely strategic plans — identifying high-potential people, providing them with coaching, advice and something impressive looking like an executive address and something impressive looking like a SWOT chart — the practical issue of individual capacity is left on the sidelines.

Imagine a doctor in the ER looking at a patient with a broken arm. Examining the patient the doctor decides to bandage, "I need to set that arm, stabilize the blood pressure, stop the bleeding to the chest, keep the airway clear, assess the patient to see a good medical program, take a daily count vitals, get out of the ER as a medical emergency program, and finally to an injury management counseling." This approach to medical care would lead to disastrous results.

Your organization where it is OK to fail. What tasks are important to the health of the company and which ones — though important — can be compromised?

This is tough to do because failure is not traditionally taught in business courses. Failure is not an option, "It's not that has become part of our cultural lexicon. Not knowing where you are willing to fail means not being willing to fail at all. Leaders must intentionally communicate the correct path to success and do so at the individual level. Direction, shared, realistic goals and direction from the strategic plan helps to define the path to the destination — the destination is the goal. The most important question to ask about execution: "What is your focus?"

4. NOT KNOWING HOW TO DEFINE SUCCESS.
 This metric tells you that the strategic plan is all about determining a path to success, but when success has multiple definitions there is nothing a strategist can do to define success for the organization. When you do, you cannot define success internally, the chance of defining it for your clients are dramatically reduced. The best of course, is to measure success with terms of financial data. This is essential, as the DNA of a bus-

"ARE WE SUCCESSFUL, AND IF WE ARE, HOW DO WE KNOW?"

business, the doctor pays attention to the most critical element of treatment and orders that first. Once additional attention is afforded to the next priority, business, two more strategic plans take a "broken link" approach to the business practice. Ensuring a high level of everything gets done, but nothing gets consistently done. The most important question is the strategic plan: "Can we do all of this, and if we can, what do we do first?"

3. IT'S NOT ABOUT EXECUTION, IT'S ABOUT FOCUS.
 How many times have you heard a leader state, "We have the right strategy, but we can't execute?" The fact is that while focus, one organization — from a limited team to a large, multi-national corporation — will fail to achieve its goals. Generally people do what they are rewarded to do. When there is confusion, the reward connection between the strategic plan and the work that gets done is critically compromised. The most important — avoid, predict — way to give focus is to get into what. Look at the long-term focus: a clear definition from organization. People immediately get on the same page. The value of the work is clearly presented, teamwork is highly valued and individuals perform at peak levels.

Some organizations operate this way. Client management is a mix of things done. This is because and measurable. But how do you drive focus into an organization without sacrificing interest and multi-business practices? You must track

needs in defined measures. Yet, members can do your practice in the process of defining success. You can provide confidence evidence of success, by internally focused to a faith and provide information on just performance rather than an account production of focus outcomes.

A vital job of a leader is to decipher the difference: management is the collection of data, leadership is creating organizational action. The most important question to ask when defining success: "Are we successful, and if we are, how do we know?"

Leaders fail because we never have understood the strategic thinking, which is typically presented at the top of an organization. It is only as good as it is understood and executed every level in the organization.

John Bollen is a author of the newly released book, "REDEFINING Thinking — From Fear to Focus." As a leadership expert, speaker and founder of REDEFINING Thinking, John has helped hundreds of organizations achieve success by applying a practical framework of thinking during times of change and uncertainty. He has over 15 years experience as a senior executive with companies including American Express and Microsoft. For more information, visit www.ReDefiningThinking.com or call 800-800-8000.

28 Strategy First • John Bollen's Column

John Bollen's Column • February 2011 21



STOP TRANS VIOLENCE

By Julia O'Donnell

73% of all transgender hate crimes in 2013 were directed towards women, and

67% of them were black,

21 documented murders of transgender people in 2015,

17 of which were people of color.

11 states documented murders of transgressors in 2015 but have no law protecting gender identity.

Propelled by a new age of liberal multiculturalism, the LGBT Equality Gap Bureau (transgender) community has manifested a rising and positive presence in society and public policy. Within the past year, Obama has announced the first LGBT bookmarks, Secretary of Defense Leon Panetta, and the US Secretary of Defense have had an openly transgender serving in the military. However, the integration of systematic racism and homophobia on transmissible ethics in the most prominent epidemic within the LGBT community—the murder and violence towards transgender people of color.

Trans violence is an act of violence to be directed towards an individual who identifies themselves as transgender, whether falling under the umbrella of hair colors. In 2015, 73% of all transgressors have crimes were directed towards women. Of these women, 67% of them were black.

Zella Zooka, a 21-year-old transgender woman of color, was found in an alley near a fast-food restaurant in the town in October, 2015. This case is relatively rare, given that there are 21 documented murders of transgender people in 2015, 17 of which were people of color.

Further community along these acts of violence in the manner by which the murders are investigated. Zooka, a Maryland resident, lived in a state that does not include gender identity within the banner of hate-crime laws. Other states that documented murders of transgressors in 2015 but have no law protecting gender identity are Pennsylvania, North Carolina, Arizona, Michigan, Texas, Florida, Michigan, Wisconsin, Alabama, and Louisiana. Zooka, like many others, was initially investigated by the police upon investigation for her murder.

Within a progressive society, no one should have to grapple with their faith being questioned due to their being because of the color of their skin, sexuality, or gender identification. The issue of trans violence has become a hot topic in the media, especially with the increasing number of murders in the past year. The public must become more aware and educated about the grim reality that this demographic faces, with the goal of making our society more acceptable and safe for everyone.

VIOLENCE

STREET STYLE



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It's Not Lonely It's Adventure

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Travelling

through

A personal account of medical devices

By Vicky Shlyton



time

Medical devices have been used for thousands of years – Hippocrates had a ladder-type device to help alleviate dislocated shoulders. Although the device is no longer used, his methods. Early but effective medical devices like spectacles, syringes and lithotriptors were all fairly basic. What struck me is how some very simple ideas have changed so many lives for the better. Looking into the past, I wonder how many people would have lost their lives were it not for simple medical devices. Of course, all of these devices have been improved and modified from their simpler origins in the past. Such progress is not an end in itself, as the present state of medical devices, how can we improve them so that they have an even greater positive impact on people's lives? Will all the future be like for these exciting devices? Can't travel back in time to the past, assess the present and possibly predict the future of medical devices? —

Older Americans Are Hooked on Vitamins

Research reveals vitamins do little good and can be harmful

LIZ SZABO

When she was a young physician, Dr. Martha Gulati noticed that many of her mentors were prescribing vitamin E and folic acid to patients. Preliminary studies in the early 1990s had linked both supplements to a lower risk of heart disease. She urged her father to pop the pills as well. "Dad, you should be on these vitamins, because every cardiologist is taking them or putting their patients on them," said Gulati, now chief of cardiology for the University of Arizona College of Medicine-Phoenix.

But just a few years later, she found herself reversing course, after rigorous clinical trials found neither vitamin E nor folic acid supplements did anything to protect the heart. Even worse, studies linked high-dose vitamin E to a higher risk of heart failure, prostate cancer, and death from any cause.

"You might want to stop taking them," Gulati told her father. More than half of Americans take vitamin supplements, including 66 percent of those age 65 and older, according to a 2013 Gallup poll. Among older adults, 29 percent take four or more supplements, according to a *Journal of Nutrition* study published in 2012.

Often, preliminary studies fuel irrational exuberance about a promising dietary supplement, leading millions of people to buy into the trend. Many never stop. They continue even though more rigorous studies—which can take many years to complete—almost never find that vitamins prevent disease, and in some cases find that they cause harm.

"The enthusiasm does tend to outpace the evidence," said Dr. Justin Manson, chief of preventive medicine at Boston's Brigham and Women's Hospital.

There's no conclusive evidence that dietary supplements prevent chronic disease in the average American, Manson said. And while a handful of vitamins and minerals have had positive results, those findings haven't been strong enough to recommend supplements to the general U.S. public, she said.

The National Institutes of Health has spent more than \$1.4 billion since 1999 studying vitamins and minerals. "All the research we've done, we don't have much to show for it," said Dr. Barnett

Kramer, director of cancer prevention at the National Cancer Institute.

In Search of the Magic Bullets
A big part of the problem, Kramer said, could be that much nutrition research has been based on faulty assumptions, including the notion that people need more vitamins and minerals than a typical diet provides, that megadoses are always safe, and that scientists can boil down the benefits of vegetables like broccoli into a daily pill.

Vitamin-rich foods can cause disease related to vitamin deficiency. Oranges and lemons were famously shown to prevent scurvy in vitamin-deprived 18th-century sailors. And research has long shown that populations that eat a lot of fruits and vegetables tend to be healthier than others.

But when researchers tried to deliver the key ingredients of a healthy diet in a capsule, Kramer said, those efforts rarely have yielded. "It's possible that the chemicals in the fruits and vegetables on your plate work together in ways that scientists don't fully understand and which can't be replicated in a tablet," said Mary Kay McGuinness, strategic director of nutritional epidemiology for the American Cancer Society.

More important, perhaps, is that most Americans get plenty of the essentials anyway. Although the Western diet has a lot of problems—too much sodium, sugar, saturated fat, and calories, in general—it's not short on vitamins, said Alice Lichtenstein, a professor at the Friedman School of Nutrition Science and Policy at Tufts University.

And although there are more than 90,000 dietary supplements from which to choose, federal health agencies and advisers still recommend that Americans meet their nutritional needs with food, especially fruits and vegetables.

Also, American food is highly fortified, with vitamin D in milk, iodine in salt, B vitamins in flour, and even calcium in some brands of orange juice.

Without even realizing it, someone who eats a typical lunch or breakfast is essentially getting a multivitamin,

said *Journalist* Catherine Price, author of "Krautopia: How Vitamins Revo-



There's something appealing about taking a natural product, even if you're taking it in a way that is totally unnatural.

Catherine Price, *journalist and author*

lutionized the New York Times' "Think About Food."

That can make studying vitamins even more complicated.

Price said, researchers may have trouble finding a true control group, with no exposure to supplemental vitamins. If everyone in a study is consuming fortified food, vitamins may appear less effective.

The body naturally regulates the levels of many nutrients, such as vitamin C and many B vitamins, Kramer said, by excreting what it doesn't need through the urine. "It's hard to avoid getting the full range of vitamins," he said.

Not all experts agree. Dr. Walter Willett, a professor at the Harvard T.H. Chan School of Public Health, says it's reasonable to take a daily multivitamin "for insurance."

Willett said that clinical trials underestimate supplements' true benefits because they aren't long enough, often lasting five to 10 years, it could take decades to make a lower rate of cancer or heart disease in vitamin takers, he said.

Vitamin Users Start Our Checklist

For Charissa Bentley, 62, keeping up with the latest nutrition research can be frustrating. She stopped taking calcium, for example, after studies found it doesn't protect against bone fractures. Additional studies suggest that calcium supplements increase the risk of kidney stones and heart disease.

"I had fishy chewed those calcium supplements, and then a study said they didn't do any good at all," said Bentley, a native of Austin, Texas. "It's hard to know what's effective and what's not."

Bentley still takes five supplements a day: a multivitamin to prevent dry eyes, magnesium to prevent cramps while exercising, and yeast riboflavin to prevent diabetes, coenzyme Q10 for overall health, and vitamin D based on her doctor's recommendation.

Like many people who take dietary supplements, Bentley switches what she eats and exercises regularly, playing tennis three to four times a week.

People who take vitamins tend to be healthier, wealthier, and better educated than those who don't, Kramer said. They are probably less likely to succumb to heart disease or cancer, though whether they take supplements or not. That can skew research results, making vitamin pills seem more effective than they really are.

Faulty Assumptions

Preliminary findings can also lead researchers to the wrong conclusions. For example, scientists have long

observed that people with high levels of an amino acid called homocysteine are more likely to have heart attacks. Because folic acid can lower homocysteine levels, researchers hoped that folic acid supplements would prevent heart attacks and strokes.

In a series of clinical trials, folic acid pills lowered homocysteine levels but had no overall benefit for heart disease, Lichtenstein said.

Studies of fish oil also may have led researchers astray. When studies of large populations showed that people who eat lots of seafood had fewer heart attacks, many assumed that the benefits came from the omega-3 fatty acids in fish oil. Lichtenstein said.

Rigorous studies have failed to show that fish oil supplements prevent heart attacks. A clinical trial of fish oil pills and vitamin D, whose results are expected to be released within the year, may provide clearer questions about whether they prevent disease.

But it's possible the benefits of sardines and salmon have nothing to do with fish oil, Lichtenstein said. People who have fish for dinner may be healthier due to what they don't eat, such as alcohol and cigarettes.

"Eat healthy and you're probably going to be healthier, but we haven't been able to show that taking fish oil [supplements] does anything for you," said Dr. Steven Nissen, chairman of cardiovascular medicine at the Cleveland Clinic Foundation.

People who take vitamins tend to be healthier, wealthier, and better educated than those who don't.

Too Much of a Good Thing?

Taking megadoses of vitamins and minerals, using amounts that people could never consume through food alone, could be even more problematic.

"There's something appealing about taking a natural product, even if you're taking it in a way that is totally unnatural," Price said.

Early studies, for example, suggested that beta carotene, a substance found in carrots, might help prevent cancer. In the tiny amounts provided by fruits and vegetables, beta carotene and similar substances appear to protect the body from a process called oxidation, which damages healthy cells, said Dr. Edgar Miller, a professor of medicine at Johns Hopkins University School of Medicine.

Experts were shocked when two large, well-designed studies in the 1990s found that beta carotene pills actually increased lung cancer rates. Likewise, a clinical trial published in 2011 found that vitamin E, also an antioxidant, increased the risk of prostate cancer in nearly 17 percent. Such studies confounded researchers that oxidation isn't all bad; it helps kill bacteria and malignant cells, helping the most before they can grow into tumors, Miller said.

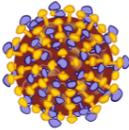
"Vitamin is not inert," said Dr. Eric Ribick, a prostate cancer expert at the Cleveland Clinic who led the vitamin E study. "They are biologically active agents. We have to think of them in the same way as drugs. If you take too high a dose of them, they cause side effects."

Gulati, the physician in Phoenix, said her early experiences with recommending supplements to her father taught her to be more cautious. She said she's waiting for the results of large studies, such as the trial of fish oil and vitamin D, to guide her advice on vitamins and supplements.

"We should be responsible physicians," she said, "and walk for the data."

Liz Szabo is a writer for *Kaiser Health News*, which originally published this article. KHN's coverage of these topics is supported by John A. Hartford Foundation, Gordon and Betty Moore Foundation, and The SCAN Foundation.

This is our current spread for the first four pages (TOC + masthead) so you can get an idea of what “vibe” we are going for!

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LETTER FROM THE EDITOR



Anuj Shah
Microbiology and Immunology
Class of 2021
Editor-in-Chief, UMIAMI SCIENTIFICA

I hope you all are staying healthy in these uncertain times. Now more than ever, we must remind ourselves of our responsibility to find factual information, dispel myths, and remember our obligation to the those around us. It's important to recognize that individual health is public health, and vice versa.

Hiding in the shadows of the pandemic, another equally deadly but far more silent epidemic is tearing through communities across the U.S., including ours here in Miami. Though the tragic deaths may not be as conspicuous, we hope our coverage of the opioid epidemic in the U.S. will inform you about the issue's severity and urgency. With the COVID-19 pandemic, opioid epidemic, Australian bushfires, or any other crisis, it's time to ask ourselves what is stopping us from providing resources—whether it be virus tests, treatment, or emotional support—to those in need. Now is the time to take action and make sure this first modern pandemic is the last of its kind.

Stay safe, 'Cause!

LETTER FROM THE EDITORIAL ADVISOR

I speak for everyone at UMIAMI SCIENTIFICA when I say that I hope you are staying safe and following the guidance of our public health officials and scientific community. We are all used to seeing controversy in our daily lives, but our lives change significantly when deception infiltrates the information that we rely on for our survival. The theme of this issue, deception and controversy, is even more relevant in our current situation, as we ask ourselves "how do we really know who and what to trust?" Scientific studies and discoveries showing what can appear to be promising advances often do not pan out, and as scientists or laypeople, we must be diligent to evaluate the sources of our knowledge and question those in positions of power.

Prior to COVID-19, the opioid epidemic was at center stage, displaying the dangers of corporate greed and misinformation toward creating impactful policy. Please enjoy this issue, and appreciate that even though our world is usually filled with factual advice, there still exists those who are set on pushing forward regardless of the cost.



Roger I. Williams Jr., M.S. Ed.
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