

## OPIATES

Medical companies, medical professionals, and the opioid epidemic

## BODILY AUTONOMY

A right stripped from women

# BEYOND

BEYOND THE SCIENCE OF  
HEALTHCARE

# TABLE OF CONTENTS

03



10



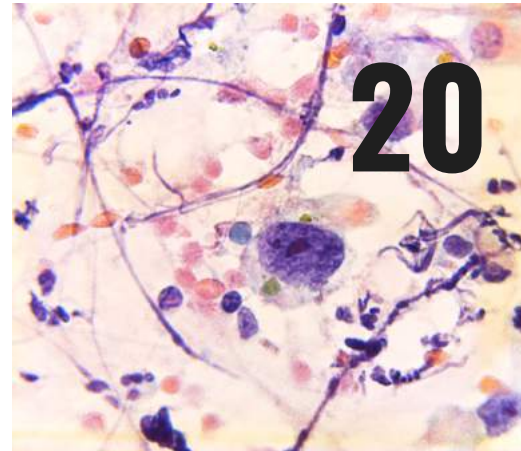
15



18



20



- 02 Founder's Letter
- 03 The Opioid Crisis
- 07 The Omicron Variant
- 10 American Healthcare
- 12 Reproductive Autonomy
- 15 Mental Health
- 18 American Diet
- 20 Stem Cells
- 21 Autism

# A LETTER FROM OUR FOUNDER

Rehman Hassan

Often healthcare is limited to the world of science: the development of cures to diseases in an obscure medical laboratory by award winning scientists. In actuality, hundreds of factors impact the healthcare that people receive. Politics, economics, philosophy, ethics, education, and many more areas influence the way that conditions are diagnosed and treated.

A major area in journalism that has been neglected has been the non-science aspects of medicine. These neglected areas are areas that deserve extensive thought and understanding as many of them have long lasting impacts on healthcare.

We live in a world where healthcare is under constant attack and the rights of many are restricted. In this difficult war, fighting for the rights of people within the healthcare system is imperative. *Beyond* aims to be a magazine that fights for people and recognizes the good and the bad of healthcare demonstrating the many factors that go into a person's care. Our goal is to expand perspectives and show the reality of what goes into healthcare.





## MEDICAL COMPANIES, MEDICAL PROFESSIONALS AND THE OPIOID EPIDEMIC:

# HOW ARE THEY ALL CONNECTED?

BY: ALANNA POLYAK

"Opioid prescriptions increased from 76 million per year in 1991 to over 282 million in 2012. Pain clinics sprang up. Operated by unscrupulous doctors, these clinics wrote very large numbers of opioid prescriptions for clients. Drug dealers paid people to get unnecessary prescriptions, to provide drugs for sale to addicts. The number of addicted users increased exponentially," (Watts, Tim J. "Opioid Crisis"). These alarming statistics show the need for a solution and to find that much-needed solution. The root of the epidemic must be found. As the number of opioid prescriptions continues to rise and contribute to the current opioid epidemic in the United States, it is imperative to assess the role that medical companies and medical professionals play and evaluate whether or not they contribute to this magnifying crisis.

Pharmaceutical companies are at the center of the opioid epidemic as they are where opioids originated; thus raising concerns of individuals of whether pharmaceutical companies, similar to Purdue Pharma, can have the blame for the opioid epidemic placed on them. Supporters who believe pharmaceutical companies are the root of the opioid crisis argue that without pharmaceutical companies, such as Purdue

Pharma, medications like OxyContin and Fentanyl would not have been made available to the public. The supporters argue that not only did Purdue Pharma put such medications into the public's hands, but Purdue Pharma intensely marketed and provided misleading information about the drugs to the public. In August 2019, the New York Times reported: "'There's no question that this epidemic began with the rampant overprescribing of those painkillers and that their overuse was fueled, quite deliberately, by the pharmaceutical industry's efforts,'" ("Opioid Epidemic: Should the Government Take More Aggressive Measures). This quote, said by a supporter, states that the intense misuse of opioids by the public, and malpractice regarding opioids, was no doubt caused by the major pharmaceutical companies that marketed the drugs. Supporters argue that opioid misuse and abuse could not have originated without the intense marketing of opioids; they also argue that malpractice by doctors had also not been common prior to opioids.

Many supporters believe that once opioids had been introduced in the medical community, doctors realized the profit that would be available if they would continuously prescribe opioids. Purdue Pharma pushed this idea onto doctors; therefore, many supporters argue that the growing number of pill mills would not be possible without Purdue Pharma. According to an article by David Newton, a researcher who focuses on the opioid epidemic, "The

company reportedly held many meetings at which more than 5,000 physicians, pharmacists, and nurses were in attendance, touting the new "gold standard" for analgesics, OxyContin. Again, it made its pitch directly to individual physicians, the majority of whom were not pain specialists, through a network of sales representatives who made more than \$40 million in sales incentive bonuses in 2001," (Newton, David E. "Oxycontin"). The company, Purdue Pharma, had been continuously advertising and pitching their product specifically and directly to doctors; many of these doctors were not pain specialists, and therefore, not educated enough in the pain medicine field to be able to determine the safety and effectiveness of Purdue's products. The sales representatives pitched to the doctors and made lots of money for doing so. In return, the representatives would earn a high income for providing false and misleading information about opioids to medical professionals and the public. Supporters argue that because Purdue earns billions of dollars from their various products being sold and distributed by pharmacies and doctors, they pay their representatives a high salary to market their products as if the drugs are a magic trick that can cure every type of pain. Many supporters have stated that the more representatives Purdue would encourage to market their product, the more money Purdue Pharma would earn. Supporters state that the company also held multiple meetings where massive amounts of doctors, pharmacists, and other medical professionals were present; in these meetings, they pitched Oxycontin as the gold standard of pain medicine. Advocates against Purdue argue that Purdue was pushing the product onto the public and continuously trying to sell the opioids for a profit. Supporters argue that these meetings are proof of Purdue Pharma's knowledge of how influential they are capable of being, therefore, gaining "customers" for any



and every medication they would pitch. Supporters state that the money put in place by the pharmaceutical companies to find a solution does not come close to equating to the amount of money the companies are gaining daily-- from opioid prescriptions being written and refilled everywhere in the United States daily. Supporters who believe pharmaceutical companies are solely to blame for the opioid crisis argue that the meetings held by the pharmaceutical companies and the marketing efforts of the companies directly influenced the rise in opioid overdoses as well as the rise of medical malpractice. Pharmaceutical companies are currently being investigated as the root of the opioid crisis; however, many people are left wondering why the companies, who have spent millions of dollars trying to find a way to solve the opioid crisis, are accused of causing the epidemic rather than praised for their effort to solve the epidemic. Opponents who believe pharmaceutical companies are helping find a solution to the crisis argue that without the efforts of pharmaceutical companies to solve the crisis, the United States would not be taking the epidemic seriously. Opponents also argue that the United States would not be putting as much time and consideration into the crisis as the nation is currently without the efforts of various pharmaceutical companies. Bob Josephson, a spokesperson for Purdue Pharma, stated, "Pharmaceutical giants like Purdue have taken the lead in fighting the opioid epidemic, critics note, by trying to design pills that are less

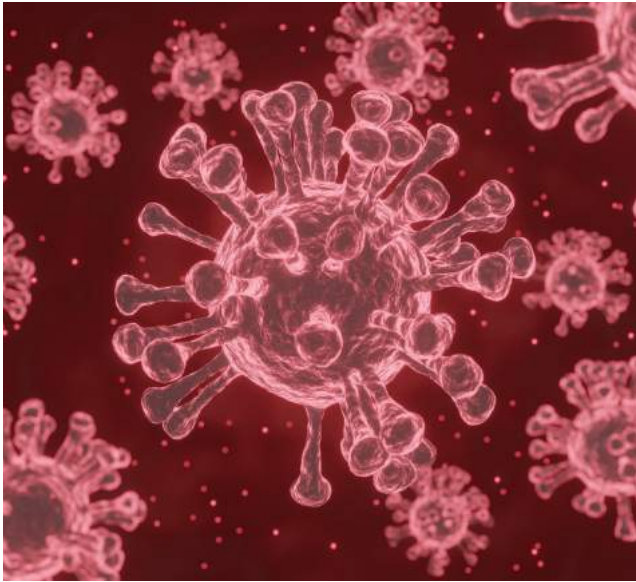
susceptible to abuse. "The opioid crisis is among our nation's top health challenges, which is why our company has dedicated itself for years to being part of the solution," (Opioid Epidemic: Should the Government Take More Aggressive Measures). Bob Josephson also stated that the primary figures fighting the crisis are companies, such as Purdue. This is because Purdue has been composing a pill that is just as effective as Oxycontin and Fentanyl but less addictive. Opponents argue that the opioid crisis is a major crisis that pharmaceutical companies, such as Purdue, have been continuously attempting to develop a solution for as the epidemic needs to be addressed. Opponents argue that this crisis, which is killing more and more people in the United States daily, is being fought off by the pharmaceutical companies that dedicate their time and money to the opioid epidemic. A writer for the Wall Street Journal stated, "Threatening companies that have made good-faith efforts to help stop opioid abuse, critics contend, is counterproductive. Cardinal Health "isn't a [Colombian] drug ring," Dr. Scott Gottlieb wrote in the Wall Street Journal" (Opioid Epidemic: Should the Government Take More Aggressive Measures). Gottlieb argues, much like many other opponents, that accusing pharmaceutical companies of causing the epidemic is ineffective and impractical as the pharmaceutical companies have been attempting to lessen the impact of opioids on the general public as well as attempting to find a solution that could replace the potentially addictive opioids for patients. This specific researcher argues that Cardinal Health, a pharmaceutical company similar to Purdue Pharma, is only trying to aid the nation and is not attempting to run a drug-fueled organization. The researcher believes that pharmaceutical companies are trying to assist patients that need pain medication while also trying to avoid supplying the public with strong opioids that are unnecessary for certain pain levels. Many opponents argue that pharmaceutical companies are trying to operate their businesses under mission statements that better the public as well as improve the overall, general health of the nation. Opponents also argue that opioids, when prescribed and used appropriately, are one of the most useful and effective pain medications; therefore, the

pharmaceutical companies can not be blamed for the epidemic as they intend for the drugs to be used properly once the opioids are put out into the public. Opponents argue that although pharmaceutical companies put the opioids out into the public, they can not be responsible for controlling and monitoring the use of opioids and the number of prescriptions, written out by doctors, for opioids. Opponents also state that the informational meetings given to medical professionals were solely to provide proper, useful information about the opioids-- that were newly developed at the time. Opponents who believe pharmaceutical companies are donating both time and money to find a solution for the crisis argue that pharmaceutical companies can not be blamed for the opioid epidemic as they have done everything in their power to promote the proper use of opioids and educate the public on the dangers of misusing opioids.

Assessing the roles of medical companies and medical professionals when prescribing opioids and treating patients will help the nation understand the role they play in the opioid epidemic whether they negatively affect the crisis or are contributing to the solution of the opioid crisis. The opioid epidemic is a crisis that has grown exponentially as the strength and popularity of opioids has progressed. Although there are people who believe pharmaceutical companies are the root of the epidemic and people who believe pharmaceutical companies can not be blamed for the opioid crisis, there are many solutions the nation could put in place to solve the crisis. For example, the United States government could put more laws in place regarding pill mills and malpractice of pharmacists, as well as doctors. More laws could be put in place regarding the spreading of false information about drugs that can potentially be hazardous. Pharmacies could also place limits on the amount of opioids one person can refill at a time; the amount of opioids pharmaceutical companies can produce and distribute could also be limited. These solutions can contribute to finding a permanent, long-lasting solution to the opioid epidemic; however, there are currently many laws regarding opioids that are not put in place by the nation's government because of the loopholes they

contain and the lack of government persistence . If the nation can put these new laws into place, as well as enforce them, the public and other medical companies would start to realize the gravity of the opioid epidemic. The opioid crisis will continue to grow exponentially as it has been growing for the last decade in the United States. The next steps to solve the opioid epidemic that could be put into place almost instantly by the nation include making this topic more socially acceptable to discuss in public. Currently, the epidemic is a silent one as many people feel uncomfortable about discussing the crisis. If the public starts to discuss the epidemic, the nation, as a whole, would realize the urgency of the crisis. Overall, the opioid epidemic is a crisis that will continue to expand in our nation and will continue to have people with viewpoints on opposite sides of the spectrum unless actions by the United States are begun. However, no matter the viewpoints of the nation's citizens regarding medical companies and their role in the epidemic, there is one point both sides can agree on: the nation needs to come together to find a solution regarding the epidemic.





**LOOKING TO THE FUTURE:**

# COVID'S FUTURE WITH OMICRON

**BY: YASH TIWARI**

A day does not go by without hearing from the news, Google, or conversations about the new "Omicron" Covid-19 variant. As of December 20th, this new variant accounts for about 60% of active Covid cases in the United States. On November 24, 2021, a new variant of SARS-COV-2 (The official name of Covid-19) was reported to be found in South Africa. The first recorded case in the United States was in California on November 22. The person who was infected with this virus was a fully vaccinated individual who traveled from South Africa. The discovery of this variant brought back the same fear and mystery first brought to us by Wuhan. However, upon further investigation, we have learned that the Omicron variant is like none faced by the world so far. The variant carries 60 (50 nonsynonymous, eight synonymous, and two noncoding) mutations compared to the original Wuhan strain. The theory behind Omicron is that a human strain of



the virus resurfaced in animals and subsequently infected people again. When this article is being written, it is still uncertain where Omicron emerged from, but one thing is sure. The Omicron variant is a more contagious variant than Delta. An actual count of how more contagious it is than Delta remains unknown. The increased number of mutations (almost over 30) helps the variant spread more rigorously, avoiding preventative measures such as vaccinations or previous covid infections. However, it seems to be mild in terms of the actual effects once contracting this variant. The Omicron variant resembles a mild illness with less severe consequences than the Delta variant.

Symptoms can include sore throat, headache, cough, fatigue, congestion, and runny nose. But, these symptoms were taken from college students who, subjectively speaking, tend to have more robust immune systems. Understanding the actual severity of the disease may take weeks to several months, but as of now, most cases seem to be mild. While research is ongoing, preliminary evidence suggests that there might be an increased risk of reinfection with the COVID-19 Omicron variant. According to the WHO, this means that people who have previously tested positive for COVID-19 and recovered can become reinfected more easily with Omicron. The same goes for vaccines, while the vaccines are still highly recommended and help prevent Covid-19 and the effects in the chance that you contract the virus. The CDC and WHO are currently working to identify how effective the vaccines are against this virus, and the results remain unknown. About 47 million residents are still not vaccinated in the U.S. Getting the vaccine plays a crucial role in reducing the number of cases and recovering from this pandemic. Given how contagious the virus is, masks are strongly encouraged as we fight this new battle. If you are over the age of 18, you may want to consider getting the booster shot. The research found that 5-6 months after you receive the second dose of the original Covid-19 vaccine, the vaccine becomes insignificant by 50-60%. Receiving the booster shot raises the body's antibody levels again, making the vaccine

more effective. However, it is still unknown how effective the vaccine is against the Omicron variant. Research also found that vaccinated people faced no worse symptoms compared to other variants. Additionally, Pfizer announced earlier in December that a booster dose vigorously protects against the new variant in laboratory tests — similar to levels of protection that the company's initial two-dose regimen offered against the original strain — although the findings must be confirmed in real-world settings. Research reinforces the need to get vaccinated.

In the U.S, research and development are being done daily to find a treatment and way to reduce the number of cases, which is only possible with the help of individuals at the end of the day. Internationally speaking, cases of Omicron have been found in 89 countries. Recently an article published by The New York Times highlighted that the peak of South Africa's omicron variant passed with no extreme increases in hospitalizations or deaths. That gives hope for other countries. However, South Africa only has a population of 59 million people. Other countries have a much higher population, which may be a risk, but only time and research will tell. A significant factor in understanding the effects of this variant is the return to school and work, and the U.S faced multiple holidays with many people traveling and seeing family and friends. As we come to the new year and return to work, scientists fear the effects on hospitalizations. After all, the variants' true extent will likely be identified by the number of hospitalizations in the upcoming weeks. In addition, many parents fear the return of school. However, in an interview, Dr.Fauci recently said that schools are safe to open after the winter break. With the availability of vaccines from ages five or older, it may seem like a safe option for many families.

However, after seeing what Delta brought forth in child hospitalizations, the fear remains. In countries like India, Pakistan, and Bangladesh, many people, even those in the high-risk category, are not vaccinated, let alone getting a

booster shot. The vaccine is also barely available to kids, and with populations of millions of people, Omicron poses a considerable threat to those countries. Only time will tell the effects omicron will leave there. Recently, on the New Year, 200,000 people gathered in a temple located in Haridwar, India, to start the year with blessings from god. However, a good gesture proved to be deadly, with many getting stomped and others getting sick afterward. Continued large group gatherings will make situations harder for front-line workers.

In conclusion, the introduction of the Omicron variant brought back the struggle of Covid we have been battling since early 2020. With a sense of relief in the middle of the pandemic, we are now back to the same spot we were earlier. Lots is unknown about the Omicron variant when this article is written; however, taking the proper precautionary measures will do more benefit than harm. iCure urges and recommends that everyone reading this article get vaccinated to protect themselves and their loved ones from this virus. Also, using masks in public indoor places will help prevent the spread of this highly contagious variant. Taking these precautionary measures may put us back to the relief we felt in mid-2021. Also, avoiding travels and large gatherings will help keep people safe. We are in for a tough battle, but together we can tackle this battle as humans- as a team.



#### References:

<https://www.ama-assn.org/delivering-care/public-health/what-patients-may-ask-about-covid-19-omicron-variant>

<https://www.cdc.gov/coronavirus/2019-ncov/variants/omicron-variant.html>

<https://www.forbes.com/sites/williamhaseltine/2021/12/02/omicron-origins/?sh=51774db31bc1>

<https://www.beckershospitalreview.com/pharmacy/pfizer-boosters-protects-against-omicron-better-than-2-shot-series-studies-show.html>

<https://nypost.com/2022/01/02/dr-fauci-says-its-safe-enough-for-kids-to-be-in-school-despite-omicron-surge/>



# AN INVESTIGATION INTO THE AMERICAN HEALTHCARE SYSTEM

BY: REHMAN HASSAN

American healthcare is different from any other country. Healthcare costs are regularly so high that America has been named the country with the highest medical expenses. Unlike every other developed country, the United States does not have a universal healthcare system or a public insurance plan. This issue is exemplified by the fact that some researchers have estimated that 62.1% bankruptcies in the US were caused in part because of medical expenses. There are many factors contributing to the high price of healthcare in the US, including lobbying from the pharmaceutical industry and administrative expenses.

Drug prices are astronomically high in the US when compared to those of other developed countries. In fact, in many cases, drugs can cost anywhere from four to sixty-seven times more in the United States than in other developed countries. As a result, many people are unable to receive the life-saving drugs that they need and are forced to either go without medication or turn to illegal methods to obtain drugs. This represents a positive feedback loop. As people resort to dangerous methods of dealing with the high cost of drugs, people's health deteriorates, and they end up needing more medication. For example, Gleevec, a revolutionary chemotherapy treatment for Leukemia, costs an average of \$10,233 while the same drug costs \$2,206 in Japan. Gleevec's clinical trial was sponsored by the National Cancer Institute, a part of the National Institutes of Health; however, in America the drug costs the most when compared to other developed countries.

A major driver of this extremely high cost is the pharmaceutical industry. Unlike other countries, the United States allows almost all drugs that are considered safe to come to market and allows each pharmaceutical company to determine its own prices. As a result, drugs can have massively different prices between countries, and drug prices are regularly changed to influence stock prices. In fact, in a recent hearing with AbbVie, a large pharmaceutical company that created the bestselling drug in the industry, Humira, CEO Richard Gonzalez and Katie Porter described that as Humira prices have increased 470%, AbbVie has spent only \$2.45 billion on research and development, but close to \$50 billion on enriching stockholders. In order to allow this immoral issue, big pharmaceutical companies have resorted to lobbying politicians to permit these actions to be swept under the rug. In fact, just last year, pharmaceutical giants spent \$306 million to lobby the federal government to continue to allow this behavior.

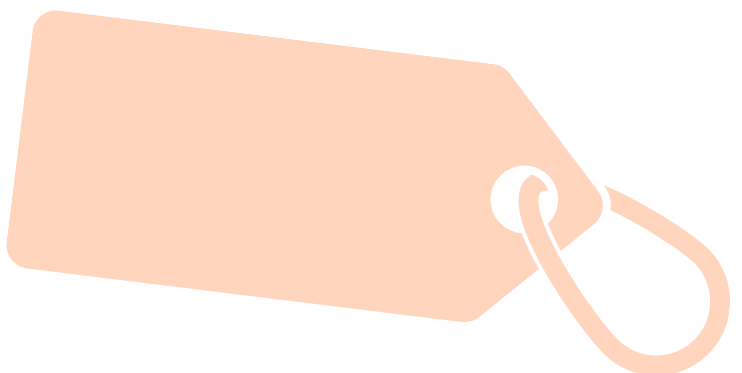


Administrative expenses are also a major part of the United States health expenditure. A large amount of money reimbursed from medical procedures and consultations is given to hospital leadership, medical administrators, and medical billers. In fact, a 2018 study found that 8.5% of the entire US health expenditure was related to hospital administration, not including the many administrative tasks that physicians are required to do. Other developed countries spent 1% of their healthcare expenditure on administrative costs. Much of this cost is due to the extreme complexity of medical billing, where in order to get paid for the work that healthcare providers do, healthcare workers are forced to jump through hundreds of hoops. In addition, with so many different insurance plans and requirements for each plan, it makes it difficult to keep up. In some cases, patients on the exact same healthcare plan are not given equal treatment. Through a complex process known as prior authorization, healthcare insurance executives without a medical background can control what treatments patients can receive. In many cases, patients can be denied expensive drugs and treatments even if it is deemed a medical necessity. This process is so extensive that the average physician has to complete 40 prior authorizations each week, which takes an average of 16 hours in addition to all the other work that physicians have to complete. This can be a significant issue because many times medically necessary treatments are held up due to administrative bureaucracy which can cause patients to deteriorate and can cause patients to abandon their treatments.

Along with hospital administration and billing costs, major issues are that of hospital leadership and hospital management. Many times, physicians are being regulated by people with no background in healthcare or medical experience. This causes a significant issue because instead of allowing physicians, the primary providers of healthcare, patients' lives are being entrusted to insurance executives and insurance agents who, many times, do not even have a college degree.

Because many health insurance companies are for-profit, the leadership of insurance corporations are motivated to provide as little care as possible to maximize profits and enrich investors and shareholders. In addition to the corporate greed of insurance companies, many hospitals, although non-profit organizations, pay company executives millions of dollars to lead these hospitals. For instance, Ramon M. Cantu, the Executive Vice President, Chief Legal Officer, and Business and Strategic Development Officer of the Houston Methodist hospital, makes \$1,590,205 per year despite not having any formal training in medicine. The salaries of for-profit hospitals are significantly higher, for example, Samuel Hazen, the CEO of HCA Healthcare, making \$30,397,771 each year. This clearly demonstrates the benefit that corporate leadership derive from the sick.

Thus, the incentivization of large corporations and hospitals to gain more and more money from managing the healthcare of the poor represents serious issues with lasting consequences which has ultimately led to distrust of healthcare and growing decline in the overall well being of the American public.





## THE REPRODUCTIVE CHOICE OF WOMEN

# A FUNDAMENTAL RIGHT

BY: YASH BALAN

Before I begin, let me explain what reproductive choice of a woman means: reproductive choice means that women have the right to choose whether or not to reproduce, including the right to choose whether or not to carry or terminate an unwanted pregnancy, as well as the right to choose their preferred method of family planning and contraception.

Where do we live? India. India is regarded as the land of the free. We enjoy numerous liberties as Indian citizens: freedom of the press, freedom of speech, freedom of religion, and freedom of choice. Despite the fact that we have battled for freedom in our country, are women truly free? Are women truly free if they are unable to make decisions about how they care for their bodies and reproductive systems?

Faye Wattleton, world renowned author of women's reproductive rights once said, "Reproductive freedom is critical to a whole range of issues. If we can't take charge of this most personal aspect of our lives, we can't take care of anything. It should not be seen as a privilege or as a benefit, but a fundamental human right." Women should be able to make their own decisions. Women have the freedom to make their own decisions. When they make a decision, they deserve to be respected. Now, a woman's reproductive choice is a basic right. A division bench of the Rajasthan High Court has maintained the concept that a woman's reproductive choice is a basic right protected by Article 21 of the Indian Constitution. It also held that right of child rape survivor to make any reproductive choice outweighs the right of the unborn child to be born. Even though women have the freedom to choose, many are afraid of the retribution they may face if they do so.

In today's world, women's reproductive rights are a worldwide problem. Not abortion or rape, but a woman's access to contraception and reproductive health is the most difficult societal problem facing women in nearly the whole globe today. Women must fight for the right to control their own bodies and reproductive choices, even if their voices are ignored in some nations. This worldwide topic of women's reproductive rights encompasses abortion, sterilisation, contraception, and family planning services. Abortion has always been a contentious issue, despite the fact that it has been legal in the United States for over five decades. The question is where to draw the line when it comes to contraception, abortion legislation, and healthcare. The debate goes from free contraception, complete healthcare, and whenever the mother chooses, to no contraception, paid healthcare, and no healthcare at all. Neither of these arguments can be sustained, and they cast doubt on human morality, individual liberty, and personal duties, as well as federal and governmental duty. Reproductive choices are sometimes presented as a "taboo" to discuss in cultures that restrict women's rights and diminish their gender equality compared to males. This can lead to misunderstandings and misinformation regarding healthy reproductive options like birth control and i

illness prevention, which should be widely accepted by women.

What if a sixteen-year-old wanted to put in an adoption application? Isn't it something she'd be refused from the start? Of course, she's far too young, far from mature, incapable of self-sufficiency, and so on. If this is the case, why should a sixteen-year-old rape victim be forced to raise a kid she didn't intend to have? Women who are not ready to create a family for any reason should not be forced to. All women are entitled to accurate information as well as safe and legal abortions. Abortion can be viewed as murder by pro-life advocates. The cells of the foetus can be called "alive" since they are technically living beings from the start of the pregnancy. Even though these cells are theoretically living, they are entirely reliant on the mother for all of their needs. Without the uterus, the cells would not be able to develop at all. "The ability to exist as a distinct person and to be conscious - aware of one's surroundings and able to think, feel, and respond to them" is defined as "human existence in its greatest sense." Except in the most extreme cases, the decision to terminate the pregnancy should be made well before the baby could live outside of the uterus.

Women in India are being persuaded to quit having children once their second kid is born. Officials say that by controlling population and women's pregnancies after their second child, they would be able to empower women by providing contraception and child care options. They can't afford good health care or contraception because they can't afford it. When women's health is compromised, their families and communities suffer as well. Women are suffering from maternal sickness as a result of a lack of health care, and baby and child death rates are rising. A lot of global developments are having an impact on impoverished women. Gender, biology, and poverty are all connected, making women more susceptible to infectious illnesses and infections of the reproductive system. Poor women are denied access to the health and reproductive services that they require. We are jeopardizing their lives, the lives of their families, and the lives of their communities by disregarding the

treatment they require.

Forced sterilization, also known as eugenic sterilization, is a technique that is widely used on women to prevent them from having children in the future. It is still used in many nations throughout the world, including the United States. Sterilization abuse occurs when a woman is either unaware that she is being sterilized or has been coerced or deceived into having the procedure done by being told that it is a temporary or reversible procedure, or that if she does not consent, she will lose her immigration, housing, government benefits, or parenting rights. This practice, which dates back to approximately 1907 in the United States, was widely used to regulate fertilization and prevent overpopulation on impoverished, underprivileged, unwed, mentally handicapped women, children, and even some males, including many persons from a minority group. Sterilization through force has a negative impact on a woman's health. This is when women must be aware of their reproductive rights, speak up against such acts, and refuse to allow anybody to compel them to harm their bodies.

For many years, women have fought for equal rights. We will be paid less, treated more harshly, and will have to battle to defend our basic human rights because of our genitalia. It is both a privilege and a burden that most women are born with the incredible capacity to bear life. Because of this power, some individuals feel that a woman's body is not entirely her own, and that the government also has rights over it. For many years, we have struggled to gain control over our own bodies. All women must realise that defending our reproductive rights is a multifaceted effort that includes teaching good sex education, maintaining women's health facilities, and safeguarding our basic human rights.





**SOMETHING THAT  
ALLOWS US TO THINK**

**YET WE FAIL TO  
TALK ABOUT**

**BY: CATHERINE OSORIO**

Have you ever heard that your brain is the boss of your body? It's no surprise as the brain controls what you think and feel. How does mental health come into play? Mental health refers to the emotional, psychological, and social well-being of an individual. It includes being able to cope with stress, being productive, and having the ability to contribute to your community. The way we think, feel, and act are all affected by our mental health. Daily living, relationships, physical health, stress, and the decisions we make are affected by mental health. Mental health plays a crucial role in every stage of life, from childhood to adulthood. The National Alliance on Mental Illness estimates that around 1 in every 5 adults in the United States experiences mental health dilemmas every year. Poor mental health can affect your ability to make the right decisions and fight off chronic diseases. Neglecting your mental health can lead to more critical health complications



such as heart disease and high blood pressure. So, taking care of your psychological and physical health should be one of your top priorities. Being emotionally healthy can promote productivity and effectiveness in activities like school and work. It can help maintain a healthy lifestyle. Being mindful of your mental health means taking time out of your day to practice self-care. Practicing self-care can make you feel good about yourself and your life. Conveying to others that you value yourself has an impact on your community.

### Factors that Contribute to a Person's Mental Health

There is unquestionably a link between your mental health and nutrition. A review of 21 studies from different countries, for example, discovered that a healthy diet (high intakes of fruit, vegetables, whole grains, olive oil, fish, low-fat dairy, and antioxidants, as well as low intakes of animal foods) significantly reduced the risk of depression. In addition, ongoing research has revealed a strong link between gut health and brain function. Healthy bacteria in the gut, for example, produce approximately 90% of the neurotransmitter serotonin, which affects mood. The food you intake has more to do with your mental health than you think.



Did you get enough rest last night? An average person should sleep for at least eight hours a day. Sleep and mental health are connected, especially when it comes to the ability to focus. Sleep deprivation can leave you feeling exhausted and irritable, but the long-term consequences impact your mental health. Poor sleep can affect your mindset and lead to mood swings of irritability and anger, making it harder to cope with stress. An analysis of 21 different studies found that people who experience insomnia have a two-fold risk of developing depression over those who do not have problems sleeping. The relationship between sleep and anxiety appears to go hand in hand as they experience sleep disturbances. Sleep problems are a risk factor for mental illnesses like anxiety disorders. If you're staying up late regularly, maybe it's time to put your mental health first.



Exercise has proven to reduce the risk of anxiety, social withdrawal, and depression, even if done for only 15 minutes a day. A few jogs around the pond can positively impact your mood, self-esteem, and cognitive function. Implementing exercise regularly into your daily schedule is not only beneficial but also necessary for your mental health.



### Improvement Strategies

Your mental health plays a significant role in your life, and it's important to know how to keep it stable and how to improve it. First, try to take care of your body. This includes getting enough sleep, having healthy eating habits, and being physically active. Second, make sure that you're taking breaks in between your day so you are not overworking yourself. You can pick up new hobbies and look for ways to improve your self-esteem. Listen to music or read a book. Third, go and ask for help if you need it. Your family and friends may also be there for you to listen or even lend a helping hand. Fourth, feel free to speak your mind. If you're ever feeling troubled, try talking to someone and remove toxic habits and relationships. Using these methods will help ease some of your stress and improve your mental health.

**If you are ever contemplating suicide, please call the national suicide hotline 800-273-8255**

### Reference

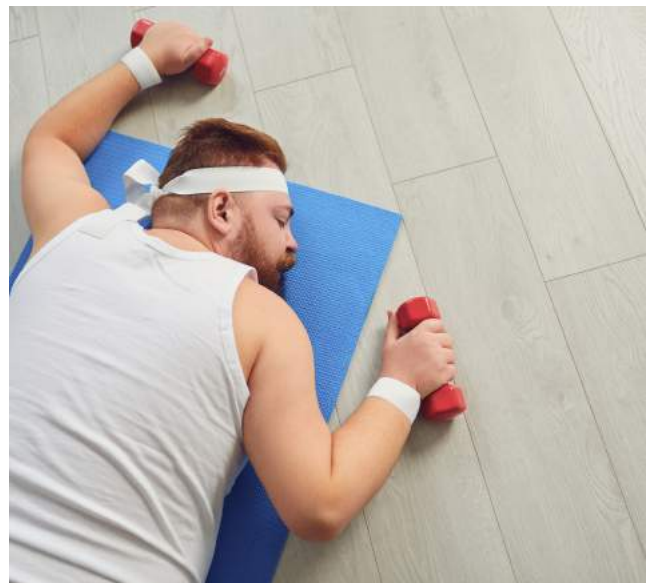
- Cherry, Kendra. "What Impact Does Sleep Have on Mental Health?" Verywell Mind, [www.verywellmind.com/how-sleep-affects-mental-health-4783067#:~:text=Lack%20of%20sleep%20is%20linked,%2C%20anxiety%2C%20and%20bipolar%20disorder.](https://www.verywellmind.com/how-sleep-affects-mental-health-4783067#:~:text=Lack%20of%20sleep%20is%20linked,%2C%20anxiety%2C%20and%20bipolar%20disorder.)
- Direct, Health. "Exercise and Mental Health." Healthdirect, Healthdirect Australia, Nov. 2019 [www.healthdirect.gov.au/exercise-and-mental-health](https://www.healthdirect.gov.au/exercise-and-mental-health)
- "How to Look after Your Mental Health." Mental Health Foundation, Mental Health Foundation, 10 Aug. 2020, [www.mentalhealth.org.uk/publications/how-to-mental-health](https://www.mentalhealth.org.uk/publications/how-to-mental-health).
- MedlinePlus. "How to Improve Mental Health." MedlinePlus, U.S. National Library of Medicine, 31 Mar. 2021, [medlineplus.gov/howtoimprovementalhealth.html](https://medlineplus.gov/howtoimprovementalhealth.html)"Mental Health Disorder Statistics." Johns Hopkins Medicine,



# THE AMERICAN DIET: ONE OF AMERICA'S FAILURES

BY: YASH TIWARI

It is not unknown that the U.S has one of the highest rates of obesity in individuals. That trend is trickling down and attacking humanity's young and upcoming generation. For starters, research points to the consumption of too many calories in the American diet. However, the consumption of calories is only one factor when looking at the problem as a whole. I like to outline the situation by saying too little, too much. The American diet consists of too much salt, fat, sugar, and calories and too few nutrients from fresh whole fruits and vegetables. Research shows that seventy percent of Americans do not get the recommended five to nine servings of fruits and vegetables each day. More than half of people consume more protein and grains than is advised, but this is due to red meat, high-fat dairy, and processed carbs, rather than low-saturated-fat proteins like nuts and legumes and whole grains. Further research shows that our consumption of calories has risen over the

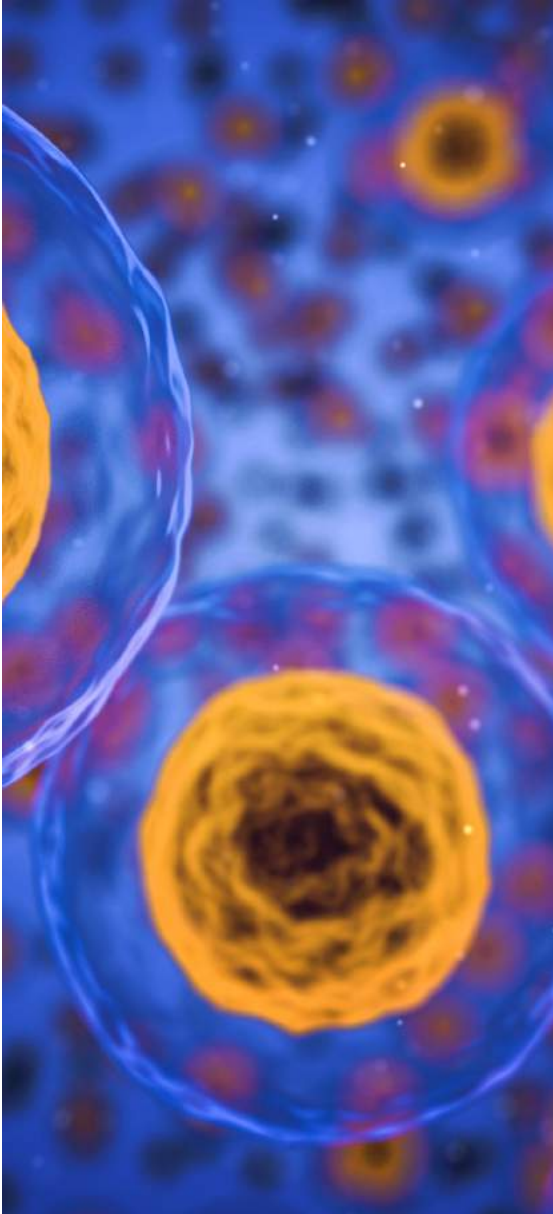


This statement confused analysts at iCure. Over the past decades, testing and education have taught people the good and bad of the food we put in our bodies. Thus, it seems illogical for the consumption of bad calories to increase. According to a 2016 research published in BMJ Open, more than half of what Americans consume is 'ultra-processed.' Frozen pizzas, microwaveable dinners, morning cereal, snack cakes, and energy drinks may all be found in any grocery aisle. Products such as these use a lot of artificial flavors, colors, sweeteners, stabilizers, and other additives that mimic non-processed foods or mask undesirable qualities of the final product. Statistics also show that the number of people that go out for their meals is higher in number than ever before. This is partially explained by the cost decrease in getting a meal, the overall economic growth, and the increase in household income. All of these conditions have led the U.S to face an unprecedented problem: "calorie malnutrition." This is a scenario in which calories are consumed through foods very low in nutrition. After further analysis, it is clear that people have begun to prefer quantity over quality, which has led to a sudden increase in the problem of weight gain. Obesity, often known as corpulence or fatness, is the abnormal buildup of body fat produced by consuming more calories than the body can utilize. Excess calories are stored as fat, or adipose tissue, in the body. Obesity was first theorized in 1948 by WHO, but was considered irrelevant to countries until a few decades later. The biggest problem with obesity is, once identified, obesity can lead to a lot of other complications within the body, including high blood pressure, heart disease, stroke, type 2 diabetes, and even death. Evidently, obesity is a very serious problem. According to the CDC, obesity prevalence in the United States climbed from 30.5 percent to 42.4 percent between 1999 and 2018. The prevalence of severe obesity increased from 4.7 percent to 9.2 percent within the same time period. This shows that the problem is just getting worse rather than better. But the question remains, what is the cure to obesity? A key component that scientists and doctors agree on is maintaining a good diet and incorporating physical activity. A good diet would consist of making sure the calories consumed come from good sources of nutrition.

Consuming less bad fats and opting for more good fats will be beneficial. Frequently, we look at fat as a bad thing. Americans couldn't be more wrong. Healthy monounsaturated and polyunsaturated fats should be included in a well-balanced diet. Avocados, olive oil, nuts, seeds, and fatty seafood are some of the best sources of these fatty acids. People should also restrict their saturated fat consumption and avoid even minor amounts of trans fats in their diet. Another thing to look out for is the consumption of processed foods. Many foods from fast-food restaurants and the food found in the frozen food aisle are heavily processed, and the nutritional value of the foods is stripped down. Eating more vegetables and fruits is more beneficial as fruits and veggies are filled with nutrients that help keep you full on minor quantities of food. Eating plenty of fiber is key in maintaining and reducing weight. Using resources such as My Healthy Plate can help keep track of your calories. Getting plenty of physical exercise is essential as well. It may be hard to indulge in physical activity at the beginning of your journey as your body finds it more difficult to move. But starting with short walks and improving every day is a great way to make physical activity a part of your daily lifestyle. Starving and fasting are methods that may seem beneficial in the short run but will not provide any value in the long run because you did not change anything about your lifestyle. You will continue to eat the same way and live the same lifestyle once you see the weight go down, but that can be a trick into gaining the same weight, if not more, quickly back again. To maintain a healthy lifestyle, it's also necessary to understand that you do not have to stop eating "junk foods" completely, but it is important to consume such foods in moderation.

#### References:

[betterthefuture.org/whats-wrong-with-the-american-diet/](http://betterthefuture.org/whats-wrong-with-the-american-diet/)  
[www.thekitchn.com/professional-chef-freezer-aisle-favorites-23043985](http://www.thekitchn.com/professional-chef-freezer-aisle-favorites-23043985)  
[www.britannica.com/science/obesity](http://www.britannica.com/science/obesity)  
[www.cdc.gov/obesity/data/adult.html](http://www.cdc.gov/obesity/data/adult.html)  
[www.medicalnewstoday.com/articles/322295](http://www.medicalnewstoday.com/articles/322295)



**A SURPRISING NEW INNOVATION:**

# STEM CELLS

**BY: CATHERINE OSORIO**

Stem cells can hold the key to curing diseases and unlocking the secrets of regeneration as they are the body's master cells. They are the cells from which all other cells with specialized functions are created. In the right conditions, stem cells divide to form more cells called daughter cells, which can either become new stem cells or specialized cells that go through differentiation to acquire specific functions. For example, daughter cells can become blood cells.

Stem cells increase our understanding of diseases and how they occur. We can view stem cells maturing into cells in bones, heart muscle, nerves, and other organs and tissues. Researchers and doctors may better understand how diseases and conditions develop. They also generate healthy cells to replace diseased cells used for regenerative medicine. Stem cells turn into specific cells that regenerate and repair diseased or damaged tissues in people. People who might benefit from stem cell therapies include those with spinal cord injuries, type 1 diabetes, Parkinson's disease, amyotrophic lateral sclerosis (Lou Gehrig's disease), Alzheimer's disease, heart disease, stroke, burns, cancer, and osteoarthritis.

Researchers continue to advance their knowledge of stem cells and their applications in transplants and regenerative medicine. They can use stem cells to test new drugs for safety and effectiveness. For the testing of new drugs to be accurate, the cells must be programmed to acquire properties of the type

of cells targeted by the drug. For example, nerve cells can be generated to test a new drug for a nerve disease. Tests would show whether the new drug had any effect on the cells and whether the cells were harmed. Stem cells are still being researched, and they have the potential to be groundbreaking in the medical field.

Sources:

<https://www.mayoclinic.org/tests-procedures/bone-marrow-transplant/in-depth/stem-cells/art-20048117>

<https://www.stanfordchildrens.org/en/topic/default?id=what-are-stem-cells-160-38>

<https://www.medicalnewstoday.com/articles/323343>

A FOCUSED LOOK INTO

# AUTISM

BY: **AYESHA SOBHAN**

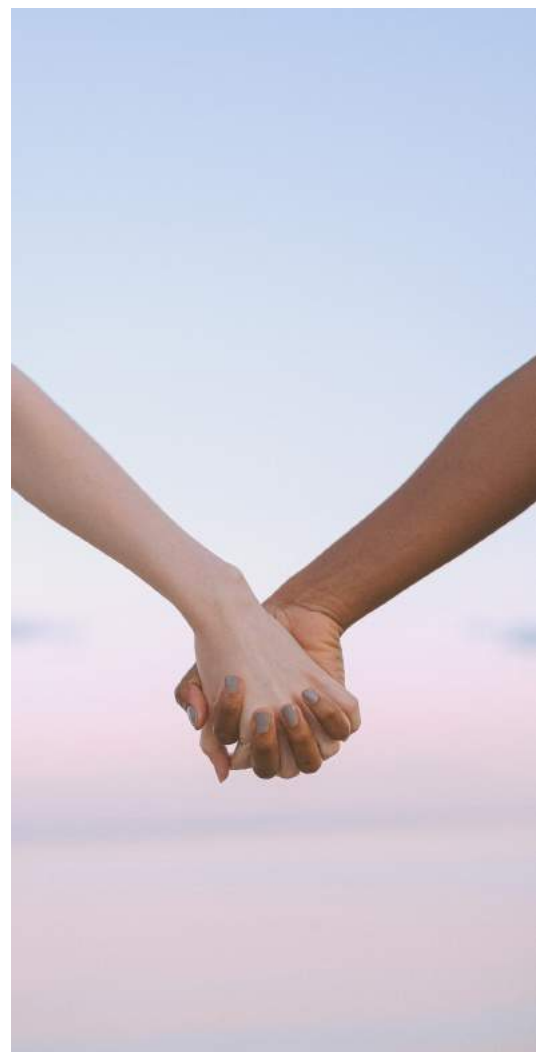
What would happen if the autism gene was eliminated from the gene pool?

You would have a bunch of people standing around in a cave, chatting and socializing and not getting anything done.

TEMPLE GRANDIN

Autism affects around 1 in 160 children worldwide. Between 2002 and 2010 alone, the prevalence of autism increased by 119.4 % in the United States of America. However, the most devastating truth is that many children that have borderline or mild ASD (autism spectrum disorder) remain undiagnosed.

Autism is a complex, lifelong developmental disability that typically appears during early childhood and can impact a person's social skills, communication, relationships, and self-regulation. Autism is defined by a certain set of behaviours and is a "spectrum condition" that affects people differently to varying degrees. The word "autism" was first coined in 1911 by a Swiss psychiatrist, Eugen Bleuler. In the early days psychiatrists suggested that autism was linked to schizophrenia, but research by the 1940s showed that was not



the case. Although the exact cause of autism has not yet been discovered, scientists do now know that autism is a genetic condition. Having one child with autism raises the odds that the next child born of the same parents will be born with autism by 20 percent.

Currently, there is also no known cure for autism; however, early identification can lead to a child receiving treatment earlier. Currently, the statistics show that parents usually begin noticing indicators of autism when a child is about four years of age. On average, these indicators lead to visits to doctors for screening after about two to three years. The screening is a modified checklist that is usually filled out by the parents. This screening is not a very effective system in identifying children that do not have severe autism. Therefore, many cases remain unidentified. In Canada, new community-based guidelines are being issued that can lead to an early detection. Parents with young children, teachers, and caregivers are given a list of indicators to look out for in children. These indicators focus on the behaviour, communication, and emotions exhibited by children aged between twelve to eighteen months. Some of these signs include:

- *Lack of communicative gestures such as using eye gaze to request for something*
- *Fixated glances at one object such as a light bulb*
- *Lack of social smiling, especially when someone smiles at them*
- *Lack of interest in social games such as peek a boo and playing with toys*
- *Over reactive to loud sounds or bright lights*

Although scientists have not pinpointed the exact cause of autism, recent research has shown how the brain plays an essential part in autism. A team of Japanese and UK researchers conducted a study of 26 males with typically developing brains and 25 males who had autism. These men had an average age of 25.3 years to 27.3 years. MRIs and fMRIs were conducted on these men, and the differences and similarities in their brain activities were noted. It was determined that in normal brains, sensory areas of the brain that receive input from

the eyes, skin, and muscles usually have shorter processing periods compared with higher-order areas that integrate information and control memory. With autism, it is the complete opposite. The sensory areas of the brain have longer processing periods compared to the high-order parts, such as the right caudate. The longer responses in the sensory parts led to a greater sensitivity in the individuals, and the longer the neural timescale<sup>1</sup> in the sensory parts, the more severe the autism. Similarly, in the individuals with shorter neural timescales in the right caudate, there were more, severe, repetitive, and restricted behaviours. The study also suggested that the subjects with autism had a greater density of neurons which led to the repetitive neural activity patterns. This study by Columbia University<sup>3</sup> also suggested that individuals with autism have a surplus of neurons. The researchers studied brain tissue from thirteen deceased adolescents aged between thirteen and twenty and thirteen deceased children between the ages of two to nine who had autism. In addition to that, the researchers also studied the tissues from twenty-two individuals who did not have autism. In the brains of the individuals without autism, the density of neurons had reduced to almost half by late childhood. In comparison to the children with autism, the density had only reduced by 16 percent. A lower reduction in the number of neurons led to a greater neuron density which, according to the study, could be the cause for autism. The researchers then implemented their findings on mouse models. They found out that a protein called mTor was responsible for the inability of the synaptic cells to prune<sup>2</sup>. When mTor was overly reactive, the brain cells lost their self-pruning abilities, and therefore, it led to an abundance of synapses. This led the researchers to conclude that the genes that led to autism probably led to an increase in the Mtor proteins in the children.

Another study suggested that lack of serotonin led to autism in children. This study by Dana Foundation led by D.Chugani concluded that low serotonin levels led to the problem of not forming proper synaptic connections. The research compared the differences of serotonin levels between children who have autism

and children without autism. In children without autism, the serotonin levels peaked by the age of six, which the researchers assumed helped to form the synaptic connections. However, in children with autism, there was no rise in serotonin, but the serotonin amount remains constant. The lack of proper synaptic connections explains the behavioural problems shown by children with autism. Some autistic children react hysterically to some common stimuli like the flicker of a light bulb. This could be because of the incorrect routing of a synaptic connection during brain development, which led to the stimulus being paired with an uncommon reaction.

This breakthrough might help to enhance the treatment that is provided to individuals with autism. Currently, the treatments focus on managing behaviour through drug or behavioural therapies. The researchers of Dana Foundation are now modelling ways in which they can increase/ regulate the serotonin levels in the body of the autistic children. The drug they are thinking about would **mimic the effect of serotonin**<sup>5</sup> in young children. In addition to the drug, the children would also be subject to behavioural treatment where they will be exposed to different types of stimuli which would help to strengthen their synaptic connections. This would set the brain development back on course. The researchers have also determined that this drug would be the most powerful when the child is about 12 to 24 months of age. This period is a key stage in the formation of synaptic connections. However, the challenge is that autism cannot be identified in children before the average age of four years. If this challenge can be overcome, then there is a high possibility that the treatment will change lives and be highly successful.



Although autistic children might have difficulty with verbal communication, they are very good visual thinkers. In special schools for autistic children, they are often taught with demonstrations. Children with autism also have a hard time remembering long sentences, so it is best to write instructions down step by step if they can read.<sup>4</sup> The instructions can also be sung to them; however, some children with autism are particularly sensitive to loud noises. In special needs schools, art, computing and programming are taught as autistic children usually exhibit extraordinary talent for art and are highly imaginative. Older children can be taught how to read by using plastic letters or block letters as children with autism often learn better when they touch and feel things.



#### Appendix:

1. Neural Timescales: is the measure of how predictable the activity is in a given region of the brain.
2. Prune: self-destruction of a cell, also known as autophagy.
3. Valnegri, November 2017
4. Grandlin T, December 2002
5. Administrator, September 2019

#### References:

- [www.sciencedaily.com/releases/2019/02/190213090814.htm](http://www.sciencedaily.com/releases/2019/02/190213090814.htm)  
<https://elifesciences.org/articles/42256>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2720498/>



<https://www.healthychildren.org/English/health-issues/conditions/Autism/Pages/Early-Signs-of-Autism-Spectrum-Disorders.aspx>

<https://www.autismspeaks.org/science-news/brain-study-finds-evidence-autism-involves-too-many-synapses>

<https://www.nature.com/articles/s41467-017-01333-6>

<https://www.dana.org/article/bringing-the-brain-of-the-child-with-autism-back-on-track/>

<https://www.iidc.indiana.edu/irca/articles/teaching-tips-for-children-and-adults-with-autism.html>

<https://www.autism-society.org/what-is/>

<https://www.webmd.com/brain/autism/what-does-autism-mean>



# Beyond Magazine

A team of people dedicated to bringing awareness about human health and helping others understand how their decisions today can impact their tomorrow

Special Thanks To:

Rehman Hassan - Editor in Chief

Yash Tiwari - Managing Editor

iCure Journalism Team

iCure Medical Advisors