THE CURE

MEDICAL JOURNAL

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Innovative Medical Procedures

- Laproscopic Spine Procedures
- Lobotomy Procedures
- 3D Bioprinting of Tissue
- Progression of Robot Procedures

MEDICAL JOURNAL

ANATOMY • DISEASE • HEALTH SCIENCE

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WHAT IS BEING ADVERTISED?

Medical advancements and innovations are being made each and every day. In this issue, the newest medications, facilities, procedures, and technology are being introduced.

WHY IS ADVERTISING IMPORTANT?

Advertisement of the newest medical breakthroughs are important because remaining updated and informed about medicine can help lengthen or even save lives.

Multiple Sclerosis Drug Innovation

The drug innovation for multiple sclerosis over the past years has greatly improved. Multiple sclerosis is a disease where the immune system begins to eat the protective covering of the nerves. It is still unknown as to what causes the development of this disease. Multiple sclerosis is a disease that has many severe symptoms.

Pain is very common, mostly in the back or sometimes in the eyes but the disease significantly affects the muscles. The muscles of an individual suffering from multiple sclerosis begin to cramp causing them to have trouble walking, not being able to move at a normal speed, becoming completely paralyzed, weak muscles, problems with coordination, clumsiness, and even muscle spasms. There are 4 different types of Multiple sclerosis. The first type is Relapsing-Remitting MS (RRMS), this type is the most common type of MS. Eighty-five percent of all people diagnosed with MS are affected by RRMS. Relapsing-Remitting MS causes people to have relapses or flare ups which cause them to have a different symptom connected to the disease. Secondary-Progressive MS (SPMS) causes individuals' symptoms to worsen over time. Most people diagnosed with Relapsing-Remitting MS will develop Secondary-Progressive over time. Primary-Progressive MS (PPMS) is a rare form of multiple sclerosis. With this type of multiple sclerosis, the patient have symptoms that worsen throughout their whole life. The final type of multiple sclerosis is Progressive-Relapsing MS (PRMS) which is also very rare. PRMS is very much like PPMS. There have been various medications created to slow progress and stop symptoms but they haven't been completely successful. While the medications do work, they arent working at great numbers. On March 28, The FDA approved a new medication to treat one of the forms of MS that are the most rare. The drug is called Ocrevus and treats both Progressive-Relapsing and Primary-Progressive Multiple Sclerosis. The MS community was extremely excited to see the new drug developed because they knew it was going to make great changes in the MS world. The drug is a monoclonal antibody which is geared towards a line of cells involved with the nerve and myelin cell damage. The drug is very convenient and only has to be taken once every 6 months, unlike other drugs involved with MS. There are extremely great results with the new drug and it holds the potential of bettering the future of medicine.

By: Brandon Porter

Minimally Invasive Spine Surgery

Many suffer from back pain, which is often treated with physical therapy, injections, or medication, but surgery is often required for effective recovery. Open-back surgery involves the surgeon opening the operating site with a large incision in order for the surgeon to see the spine anatomy and operate accordingly. As technology has improved, surgeons are now able to perform minimally invasive spine surgery to solve back complications, and this technology is improving at a rapid pace.

Achievement in today's surgical procedures and those of the future depend on the constant research, improvement, and application of medical technology to accomplish more in the operating room. Some spinal complications that are often fixed with surgery include a pinched nerve, scoliosis, arthritis, herniated discs, and spinal fractures. Rather than traditional open-back surgery, laparoscopic surgery is minimally invasive, which means that the incision is extremely small, and the surgeon often uses cameras or advanced imaging technology to view the site of operation. This creates a smaller "band-aid" wound, which allows for "smaller incisions, less pain, low risk of

infection, a short hospital stay, and reduced blood loss" (www.hopkinsmedicine.org). These procedures are improving with new methods of performing this advanced surgery. Star Medical Center's Dr. Douglas Won was the first to perform a micro-invasive endoscopic laser surgery

with a 3mm incision, which "makes use of the smallest incision of any similar technique of its kind" (www.starmedicalcenter.com). In endoscopic procedures, surgeons use "computer-assisted image guidance to allow the surgeon to "see" the spine through the skin without making a large incision" (www.spineuniverse.com). This allows the surgeon to see real-time moving images of the interior structure of a patient for the operation. The surgeon is able to easily diagnose and treat individual spinal nerves, bone spurs, and small disc fragments in modern procedures. The power and accuracy of these machines is improving with more research and development in the field, which allows for more advanced laparoscopic operations. These improvements in spine surgery operations help many to improve their lives with the positive effects of

open-back surgery while minimizing complications and recovery time. Common procedures have been shaped by major improvements to the field, and many expect this trend to continue with medical research, application, and use.

By: Kaitlyn Fisher

Mesquite Rehabilitation Institute

Had a stroke but don't wanna go broke? Come to Mesquite Rehabilitation Institute and we will give you hope!

Here at Mesquite Rehabilitation Institute we provide the best inpatient and outpatient care for patients recovering from injuries, illnesses, or chronic medical conditions. Our business has earned national recognition and has been ranked in the top 10% nationally for rehabilitative care. We have also obtained the joint commission's advancement stroke certification meaning that we provide the highest level of care in this community!

Here in mesquite, we believe in individualized treatment plans for every patient and their family. This provides the patient with a self paced recovery and produces the best results. Our rehabilitation team is made up of trained physicians, occupational, speech and physical therapists, as well as many other specially trained professionals. Our outpatient

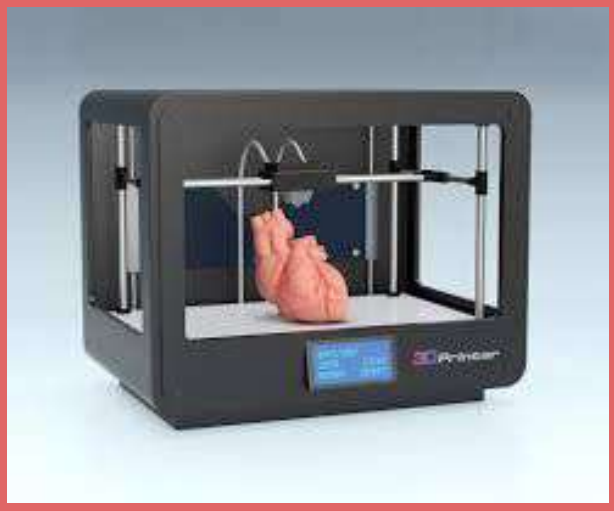
rehabilitation programs include therapy areas, including a therapy gym with private treatment rooms, and a therapeutic courtyard that includes ramps, stairs, gravel, dirt, curbs, and wood decking. Don't want to be an outpatient? We also provide an inpatient program with multiple day rooms, including daily living suites and a transitional suite. This allows patients to have everyday supervision of a healthcare professional during rehabilitation activities.

Along with inpatient and outpatient services, we have support groups for patients and caregivers to regulate mental health. The two main support groups we provide here in Mesquite include stroke and parkinson's patients. These groups provide opportunities for patients to communicate and share their problems. Come to Mesquite Rehabilitation Institute and received the best care in the community! Don't waste time on other care centers that are not as qualified or as motivated. We are the best in the area and we want to help you!

By: Kayla Cook

3D Printing of Human Tissue

3D bioprinting is the use of 3D printing processes and techniques to combine biomaterials, nutrients, cells and growth factors to implicate the body tissues and organs. The 3D process incorporates a layer-by-layer approach to create theses organs and tissues. New research with 3D bioprinting is being done to regenerate ligaments and joints in the body.



Bioprinting, commonly known as human tissue, occurs in three steps. Theses three steps are pre-bioprinting, bioprinting and post-bioprinting. Pre-bioprinting is where the creation of a model takes place on the printer and you are choosing materials that are being used. You will obtain a biopsy of the organ that you will be creating and technologies include a CT and an MRI. Upon the image being created, it will then be sent to the printer and certain types of cells will be isolated from others and then be multiplied while being mixed with liquified materials that are providing nutrients and oxygen to keep these cells alive. Bioprinting is the process of the liquid mixture of cells and matrix being placed in the cartridges of the printer and then being deposited onto a biocompatible scaffold using the layer-by-layer approach to generate similar tissue 3D structures.

Post-bioprinting creates a stable structure from the biological material. If this process isn't done adequately, then the functionality of the tissue-like organ may not work correctly. This can be done through mechanical and chemical stimulations that will send signals to cell, controlling the remodel and the growth of the 3D tissue.

Health care professionals use 3D bioprinting to help patients on the universal donor lists receive a working and efficient organ, prevent cell rejection that occurs in transplants, replace animals in testing labs, and replace volunteers in drug testing labs. The innovation of this technology is just the beginning of the replication of organs and tissues from a cellular level.

Sub-editor:
Bethany Stewart

HISTORICAL MEDICINE

Karena Kariampuzha, Ryanne Tidwell, Shane Davis, Tracy Avalos

INCLUDED

Culture of Mental Institutions by Karena

Progression of Robot Surgeries by Ryanne

Lobotomy Procedures by Shane

Natural Remedies by Tracy

WHY IS HISTORICAL MEDICINE IMPORTANT?

The history of medicine cannot be overstated. It shapes all aspects of the cultural, philosophical, and political commitments of society. With medicine changing and improving so fast, it is important to learn from the past and how it has and will influence the future.

Mental Institutions Around the Globe

Across the globe, millions of individuals suffer from a restrictive mental disease that leads them to be locked up in a mental institution. Mental institutions were established and used hundreds of years ago, in several different countries around the world. Each of these countries have different methods and containment policies based on the social environment and culture.

In China, mental institutions were established in 1898, after American medical missionaries had raised enough money through fundraising. Before the first institute, those who were mentally ill were usually neglected and kept in dark rooms of their homes. Families attempted to keep them inside their home, but if they were to leave, they would be made fun of in the street and stoned. Also, if they were to do anything wrong, regardless of their mental status, they would be placed in jail. Those who were mentally insane, were not socially accepted and were a disgrace to their community.

In India, the first mental institute was established under british rule and it was meant to keep mentally ill individuals from joining the society. Mental institutions since then may have improved the treatment of the patients, but Indian citizens who are in these institutions are still not respected or seen as a wholesome person. Mental illness was and still is viewed as a type of disability in their culture. Because of the fear of being classified as mentally insane, a large percentage of individuals go untreated in India.

When mental institutions were first brought to Canada at the end of the 19th century, individuals were genuinely concerned with the mental health of their patients. The institutes were established under the influence of Great Britain, France, and the United States. When they first opened, the Canadians were determined to not allow for the difference in social classes to stop mentally ill patients from being admitted into their hospital. They wanted individuals to feel safe under their care and in their facility, contradicting with how it used to be in European countries. However as time

went on, they began to fall under similar issues of mistreating people as the Europeans had before and the purpose of opening a mental asylum began to diminish. In 1980, the number of patients in insane asylums significantly decreased, so the asylums began to shut down while sections of psychiatric care in generalized hospitals would thrive and conditions have been similar ever since.

At a final glance, it could be detected that each country that had established mental institutions have been faced with hardships and misguidance on treating their patients. All in all, these institutions have come a long way from where they once were before, and are a safe place for any and almost all cultures to to take shelter in today.

By Karena Kariampuzha

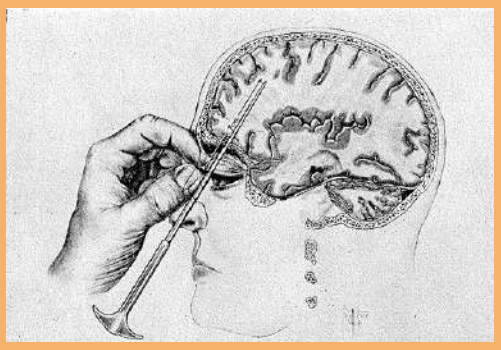
Progression of Robot Assisted Surgeries

Robot assisted surgeries allow for doctors to perform a better procedure for their patients. This allows surgeons to have better precision, more control than other types of procedures, along with better flexibility. Robot assisted surgeries are typically performed on minimally invasive surgeries but can also be performed in normal open surgeries. The very first robot assisted surgery was performed in 1985 during a delicate neurosurgical biopsy, a non-laparoscopic surgery. The machine was a PUMA 560 surgical arm which led to the first laparoscopic procedure involving a robotic system in 1987. In 2000, a new and improved robotic system was discovered. This time the robotic system had smaller surgical arms at only one centimeter in diameter. Robotic systems can be used in just about all fields of surgery. Most commonly they are used for the heart, bladder, knees, blood vessels and so many more. There are many advantages that come with robot assisted surgeries including, an easier route for performing more delicate and complex procedures. RAS (Robot Assisted Surgeries) makes minimally invasive surgeries possible. The recovery time of a robot assisted surgery is much shorter than a normal open surgery, there will also be smaller and less noticeable scars. There are risks for performing robot assisted surgeries, as with any other surgery. The risks of a robot assisted surgery are very similar to that of a regular open surgery, including small risks of infection and a couple others. As for the future of robot assisted surgeries, it can almost be promised that they will continue to get better and better. It could even possibly get to the point where surgeons will not have to be physically present in the operating room because the robots will be able to be controlled outside of the OR. Needless to say, our world is changing and growing each day.

By: Ryanne Tidwell

The Controversial History of the Lobotomy

The idea of lobotomies dates back to 1880's when doctors began manipulating the brain to calm patients. The term lobotomy is a blanket term for purposely damaging the brain in hopes of curing or lessening the symptoms of any mental illness. As medicine evolved, the procedure began to change. A Portuguese neurologist named António Egas Moniz performed the first modernized lobotomy in 1935. He would go on to receive a controversial Nobel Prize that would later attempt to be revoked. The procedure then migrated to the US and was first performed by Psychiatrist Walter Freeman.



Freeman and an unnamed neurosurgeon performed a prefrontal lobotomy on a Kansas housewife in 1936. Freeman thought that mental illness was caused by an overload of emotions in the brain. He also believed that severing nerves in the brain could stabilize a patient, hence why he performed lobotomies. In 1946 Freeman invented the ice-pick lobotomy which took an efficient ten minutes to perform. The procedure would start with rendering the patient unconscious by electroshock. Then the surgeon would insert a sharp instrument in the orbit of the patient's eye, piercing the frontal lobe and then moving the tool back and forth until satisfied with the amount of brain matter destroyed. The procedure experienced widespread popularity as there was no treatment at the time for severe mental illnesses. The US alone performed 40,000 to 50,000 lobotomies in total. Antipsychotics were then invented in the 50's, accompanied with massive success. This lead to lobotomies being quickly dropped as the procedure was deemed barbaric and unsafe.

By: Shane Davis

Ancient Natural Medicinal Remedies

Origin of Herbal Medicine

Modern knowledge of natural medicinal remedies has been the product of several bright individuals compiling and analyzing a copious amount of research through critical trial and error. These studies speculated on the most basic structures of a plant, such as the free floating organelles in the cytoplasm of a cell, to the mechanisms behind special plant properties that enable them to thrive distinctively from other biotic compositions. The first uses of the external and internal components of a plant were done thousands of years ago by some of the first civilizations to manifest on this Earth such as the Egyptians, Chinese, Greeks, and Aztecs.

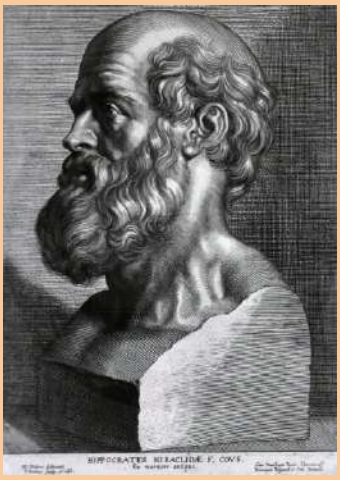
Ancient Egyptian Medicine

It was not too long ago that humans only lived up to their 40s, and possibly 50s, due to the lack of antibiotics and vaccinations available. These developments are dated back to herbal medicine; the foundation of pharmaceutical medication. The earliest written evidence of herbal medicine is attributed to the Sumerians in Mesopotamia, present-day Iraq, more than 5000 years ago (“Herbal History,” n.d., para. 3). Herbal plants were depicted on clay tablets with a summary of its uses and instructions on how to formulate the specific remedy. However, one of the most significant records of herbal

medicine is attributed to the Egyptians. The Egyptians wrote the Ebers Papyrus around 1500 BCE, a medical paper that lists over 850 herbal medicines, some of which we use today such as aloe vera, basil, castor oil, garlic, henna, honey, mint, opium, thyme, turmeric, and poppy (Beau, 2018, para. 1). Although some of the text is medically incorrect, it is one of the oldest and most important medical documents across the globe.

The Impact

Influential figures such as royal Chinese emperors, Hippocrates, Nicholas Culpeper, and a handful of other individuals, helped shape the way in which medicine was seen in some form or another. For example, Hippocrates strongly advocated the use of herbal medicine in medical practices while denying superstitions or gods as the cause of diseases and famously quoted , "let your foods be your medicines, and your medicines your food" ("Herbal History," n.d., para. 7). As any other medical finding, it takes perseverance and dedication to evaluate the effectiveness of a a treatment, which these influencers achieved successfully. Current pharmacies have their roots in herbalism as plants were one of the earliest instruments to be used for healing purposes. Humans do not only live longer due to modern medicine, but we have also formulated new medications for a range of unknown medical complaints in the past. Herbalism will continue to transform the medicine world with its exclusive qualities essential to the comprehension of medical treatment.



By: Tracy Avalos

Sub-editor:
Bethany Stewart

DISEASE

—

Marissa Jones, Sydnie Taylor, Valaya Nokeo

INCLUDED

Study of Addiction by Marissa

Study of Dwarfism by Sydnie

Dissociative Identity Disorder by Valaya

WHY ARE THESE DISEASES IMPORTANT?

Diseases being shown today are not typical diseases that everyone knows about. They are important because it gives insight into areas that are less known which makes it more interesting to learn about.

Disease of Addiction

The disease of addiction is a relapse brain disease that is chronic, and it is the need to seek and use a substance that is harmful to the body regardless of consequences. People often confuse the term abuse with addiction. Although both are connected to a certain degree, they are still on different sides of a spectrum. Drug abuse has a possibility of leading to addiction, drug abuse is the use of illicit substances or even the inappropriate use of medications.

For example, someone has a prescription for a certain amount and they take a larger than normal amount of the drug intentionally. The person has to repeatedly abuse the use of the illicit substance or medications for it to be called drug abuse. Addiction is when a person can not control their own impulse to use the drug. People who suffer from the disease, have a drastic difference in what the "normal" life is. Eating, drinking, and everyday activities take a back seat in there life. Since the disease of addiction is a very complex disease, there are a lot of factors that contribute to it. For example, genetics, environment, and even psychological aspects all play a part in the disease of addiction.

The environment contributes to the disease of addiction. A person's first exposure to drugs and alcohol might have been brought on by a common environmental risk factor. The risk factors can be divided into different parts such as a community, friends or peers, family, and even a school.

Genetics can also contribute to the disease of addiction. "The wide variety of addictive agents encompasses drugs, foods, sex, video-gaming, and gambling. Any of these agents may lead to an

"addicted state" through neurobiologic pathways partially overlapping with those involved in addiction to psychoactive substances" (www.ncbi.nlm.nih.gov).

Psychological factors are also an aid to the disease of addiction. This includes personality and presence of psychiatric disorder, as well as family, and peer. "The two most common psychiatric disorders observed in persons with addictive disorders are antisocial personality and depression" (www.nap.edu). Although psychiatric problems can occur before the start of an addiction, it can also come after.

By: Marissa Jones

Understanding Dwarfism

Dwarfism is something most people are aware of, but have no idea of the severity of the disease. Dwarfism is a rare disease with fewer than 200,000 U.S cases per year. While this is rare, it is still a severe disease that affects many Americans of all ethnicities everyday. There are over two hundred different conditions that can cause dwarfism. These patients live with this disease the rest of their lives and face challenges daily. This is not a disease that requires a cure, most people with this disease live long persistent lives. Dwarfism is commonly caused by a genetic mutation that affects bone growth, this type of dwarfism is called skeletal dysplasias. There are many different types of dwarfism affecting different parts of the human body. Many people with dwarfism can also have complications with the spine, breathing and hearing. Many dwarfism cases are caused by achondroplasia, this affects 1 out of 30,000 babies and is visible at birth. Dwarfism has more ways of being diagnosed than by just observing a patient shorter than 4'10. In fact, many patients with dwarfism have a very large head with a prominent forehead, a flattened nose, bowed legs, flat, short, broad feet and double jointedness. About 80% of small people are born to average sized parents. Never underestimate a person just because they are short, they can do everything an average sized person can do.

By: Sydnie Taylor

Dissociative Identity Disorder

Dissociative Identity Disorder is a disease in which a person can have more than two distinct personalities while the other personalities take over the individual. People suffering from DID have one main personality that can be passive while their other alternative personalities or "alters" become in control of the individual. When their alters take control, they are unaware of what is happening since the personality that is not in control will detach or dissociate. Different alters can also be triggered by certain circumstances or events but the main cause of DID is trauma. Out of all the cases in Europe, Canada and the U.S., "approximately 90% report experiencing childhood abuse" (Psychologytoday.com) and of those diagnosed, women are more likely to be diagnosed than men. To be diagnosed, the patient must have two or more alters and experience possession of their own body, hear voices, have sudden impulses, strong emotions or feel like they are observing their own actions and speech instead of actually doing them themselves. In some cultures, DID seems normal because "experiences of being possessed are a normal part of spiritual practice and are not dissociative disorders" (psychiatrytoday.com). After being diagnosed, they must learn how to cope with the disorder and continue on with their lives. A common treatment would be psychotherapy, or talk therapy. The goal is to unite all of the alters into one so that they can work together instead of working against each other and find out what triggers each personality. The patient can also learn more about their condition, learn to tolerate their emotions so they will not trigger a personality,

prevent further dissociation, learn to control impulses and manage current relationships, daily functioning and stressors. The most common alters that are present in most cases are Child/Adolescent, Protector/Rescuer, Persecutor, Perpetrator and Avenger alters. In Child/Adolescent alters, the younger alters are created because the individual could not handle the abuse that they were exposed to. The alter also acts and talks like a child but is still capable of understanding complex and abstract concepts. Protector/Rescuer alters are created to save the individual from the abuse that they were experiencing. The alters are often braver and tougher than the original individual's personality. Persecutor alters are the opposite of the Protector/Rescuer alters. Instead of trying to protect the original personality from the abuse, they blame the original personality for causing the abuse. The alter also creates negative emotions and messages that often drives the original personality to attempt suicide. Perpetrator alters are similar to Persecutor alters except they put the blame on other people instead of placing the blame on the other alters. Avenger alters become dangerous from all of the built up anger directed towards the abuser and will try to get revenge.

By: Valaya Nokeo

Sub-editor:
Kasandra Albarran

HEALTH SCIENCE CLASS

Chelsea Clark, Desiree Chandler Edwards, Hannah Luff & Tyra Williams

INCLUDED

Future Focus by Chelsea Clark

Achievements by Desiree Chandler Edwards

Experience Gained by Hannah Luff

Expectations Tyra Williams

WHAT IS HEALTH SCIENCE CLASS?

Clinicals is a class made for students who have an interest in obtaining an occupation in the medical field in the future. Once a week, students are able to visit a hospital and shadow real doctors and nurses during their regular work day. When students are not at the hospital, they are learning medical skills and about the anatomy and physiology of the body.

Clinicals: Expectations vs. Reality

As the days turned into weeks and the weeks turned into months, I began to understand the class a lot better than I had when I first walked into the classroom. The end of the school year was near and I was ready to be a junior already. This was the year I would be eligible to sign up for clinicals. The meeting was held, and the rules and requirements were presented. The names were being placed and drawn, and we were soon to find out who made it in. My pulse was fast, and my hands were extremely clammy. I could not concentrate for the two weeks that lead to the day of the big reveal. The day had come to find out who made it in. The fear of not making it in rushed through my body, I knew that this was what I had been prepared for all these years and I was not ready to see my dreams go down the drain.

The poster was standing as tall and proud as the American flag. There was not a list of names as I expected it to be, but rather our ID numbers. It took me a while to get to the front of the anxious crowd. I watched the disappointed expressions on the faces that walked past me. I was so determined to walk away with the little dignity I had but something urged me to stop and stay. I finally made it to the front of the crowd and began to

gaze gnawingly at the paper getting gloomier with every line I look down. I stopped but I was unsure of the reason why. I made it to the last ID number and read it aloud. It was my number. I really made it in, it took a while for me to recollect myself. I called and texted just about everyone on my contacts list. This had been the moment I have been waiting for. My journey had only just begun.

I waltzed into the class without a clue of what it had to offer. I was looking for something that would carry me down the path that would lead me to my dreams and aspirations. Was this class everything I hoped it would be? Absolutely. This class opened up my eyes to an upcoming reality, one I was not yet ready for. I was required to do many assignments that I was not up for completing, such as the budgeting project. Although it was long and complicated it taught me much about how the real world would be set up. Thing is, the thought of taking care of myself does not seem as difficult to do until it is time to actually do it. Know who you want to be, because once you know all there is left to do is to chase it.

By: Tyra Williams

The Clinicals Experience

The experiences we go through in life shape who we become as individuals. In high school, the courses we take affect our careers and our future. The Clinicals program at Heath High school is an incredible program for anyone interested in the medical field. Clinicals is in the public service endorsement. In this class, once a week, you travel to Presbyterian Hospital in Rockwall, Texas. Here, you are assigned a specific area of the hospital each week. You observe the physicians in their daily tasks working in all areas of the hospital. While observing, you have the chance to get to know the physicians. You can ask questions to make sure you fully understand everything they're doing. While not at the hospital, you learn crucial information such as the anatomy of the human body, working with others, interacting with patients, and hands on skills such as CPR, checking vital signs of a patient and physical therapy.

Although the class requires lots of hard work and commitment, clinicals is an extremely rewarding experience. Not only do you have the opportunity to observe inside of the hospital, you will also have times in which you travel to other locations. Autumn Leaves is a facility that cares for memory care patients. Here, you get to interact with the staff and patients. This is an incredible opportunity and very eye opening. Just across the parking lot, Rockwall Eyecare and Spine Team Texas are located. At Spine Team Texas, you observe physicians who are leading patients to health and recovery. This usually includes physicals therapy and exercises. Observing areas such as the operating room, pharmacy, PACU, labor and delivery, chaplain, and emergency room gives insight to the everyday lives of healthcare physicians. If you are interested in a career in the medical field, you should seriously consider getting involved in the Clinicals program.

AUTUMN LEAVES™
BETTER MEMORY CARE. BY DESIGN.

By: Hannah Luff

The Achievements of Clinicals

This clinicals class has prepared me for my future in medicine by helping me learn CPR (Cardiopulmonary resuscitation), vital signs, and universal precautions. I received my certification to perform CPR and gained experience towards taking vitals.

Without having taken Clinicals, I wouldn't have the knowledge of hands on skills to aid me in caring for patients.

On the first day, we began practicing CPR. I can remember mannequins scattered in front of the room. The first time before I began doing compressions, I expected it to be easy, but I was wrong. Within two minutes of doing compressions, it became physically draining. After each time I pushed down on the mannequin's chest, my hands would tingle and my breathing would quicken. Another thing I remember learning is that the primary goal of CPR is to increase the chance of survival. I was able to do compressions on both an adult and baby mannequin. The rate of compressions for both are similar, but the action of compressions are completely different.

Soon after CPR, I began taking the vital signs of other classmates. Taking vitals of a patient provides information such as body temperature, pulse, respiration, blood pressure, and skin appearance. I learned to properly take vital signs the hard way when I tried to take the easy route by falsifying numbers. Vital signs provide critical information to make life-saving decisions and pave the way for treatment protocols to be followed. Writing a paper to Mrs. Jacobs family and showing my remorse for negligence in reporting proper vital signs really brought to light how my actions have consequences.

By: Desiree Chandler Edwards

The Future of Clinicals

Health science class teaches students about jobs in the medical field that can range anywhere from nurses, doctors and hospital board members. Students get to go to Rockwall Presbyterian hospital every Monday and shadow health care providers. This allows us to get a better understanding of the day to day tasks in each profession. Every week is different, you never know what new and exciting cases you will get to observe. Getting to go to the hospital has given me a better understanding of how important patient interaction is. As a healthcare provider, you want to make the patient feel as safe and comfortable as possible so you can treat them to the best of your ability. In the future I can use the communication skills I gathered from clinicals to help me with my patients and their families.

This class is not only about going to the hospital, we get to learn lots of hands on skills. The first one we learned was CPR. We got to master how to perform this on adults, children and infants. I am now CPR certified and have the skill set to help when and if I ever see someone in need. Next came vital signs, I learned how to take a patient's pulse in the carotid, radial, femoral, popliteal, posterior tibial artery and finally the dorsalis pedis artery. I also learned how to count a patient's respiratory rate, take blood pressure and examine the color of their skin. Knowing how to gather accurate vital signs is very crucial in the medical field. These hands on skills I learned will help me be better prepared for medical school. Having prior knowledge of these concepts will give me a head start and allow me to continue on to the path of mastery.

By: Chelsea Clark

Sub-editor:
Bethany Stewart

HEALTH OCCUPATION CAREERS

Blaire Biggers, Maddi Shatto, Miranda Jones

INCLUDED

Biomedical Prosthetics by Blaire

Insight into Dentistry by Maddi

Insight into an Oncology Nurse Practitioner by Miranda

WHY IS IT IMPORTANT TO EXPLORE HEALTH OCCUPATION CAREERS?

It is important to explore different health occupation careers because there are many careers within the health field that are often forgotten. Dentistry and Oncology nursing articles include interviews with professionals.

Biomedical engineering

With the work of biomedical engineering, many people's lives are improved with technologies and products that build up society by allowing people to continue to express their livelihood even if they are injured or impaired. biomedical sales representatives are connected to biomedical engineering in the way they aid to spread the benefits and accomplishments of biomedical engineering. Biomedical sales representatives do so by advertising their products, informing the public and growing health industries of biomedical knowledge by using biomedical products. The biomedical field shapes healthcare and the public into progressing in a more professional and valuable manner.

As a biomedical sales representative, their purpose is to link with the medical industry to advertise products, medicine and equipment of a certain company in the medical industry. Biomedical sales representatives work with healthcare professionals such as general practitioners, hospital doctors, pharmacists, and nurses. Medical sales representatives typically work in a specific geographic location and specialize in a particular product with a particular company. The responsibilities of this career involve contacting potential customers, identifying their needs, persuading them that your products or services (rather than those of competitors) can best satisfy those needs; closing the sale by agreeing the terms and conditions; and providing an after-sales service. As a medical sales representative, you'll do all of this and more. Other duties include scheduling appointments with doctors or hospital teams, making presentations to medical professionals and building positive work relationships.

The process of becoming a very successful, responsible and significant sales representative takes a lot of work, but by opening up to people, being informative and lighting up the room by which you walk into at the start of your work day, success is just around the corner. A very victorious sales representative is Brad Kessler. Brad is a biomedical sales representative who at first dreamed of being a heart surgeon, but decided to pursue a career of representing a company known as, Stryker. Stryker is one of the top medical sales companies in the nation. My brother changed his desire of becoming a heart surgeon because he loved the idea of being able to connect with people by working with the medical and business industry. The education requirements also differed in length significantly, which also caught his eye. Soon after graduation high school, Kessler attended Texas A&M University that semester. Brad Kessler graduated from Texas A&M with a Biomedical major and business minor. His path to success then started when he seized the opportunity and took an interview with Stryker. With Kessler's intellectual persona and head of confidence, he got the job after the first interview. His life was then sparked with goals, a path to success and a road to provide for a family which then came soon after the start of his career and lifelong accomplishments.

By: Blaire Biggers

Insight into Dentistry

I interviewed Cary A. Shatto D.D.S., a general dentist. As a general dentist, Shatto performs implants, cosmetic dentistry, invisalign, orthodontics, root canals and regular teeth cleanings. He also specializes in sleep apnea. He has two offices located in Lake Highlands and Sunnyvale. Dr. Shatto said that his favorite part about his occupation is "satisfying patients". To elaborate on this, he stated that when he sees a patient satisfied with their teeth and oral health, he receives a great feeling and that getting paid on top of that is just, "icing on the cake." favorite part about his He also states that his least personalities" job is , " managing He says that "it is specifically staff personnel. member works for a difficult when a staff interview one way then while and when they negative light later on it show themselves in a handle. Trying to find a becomes difficult to dependable team player good , reliable and well with everyone in that connects or works be an arduous task. But the office can sometimes that has chemistry with once you find someone along with patients, it everyone in the office smoother". " He said makes the office run to be a dentist. Growing that he did not always want up he thought he might professional athlete at one another. He said that he, "wanted to do something in the medical field but did not want to have doctors hours." He did want the title doctor but not the on call 24/7. He got to where he is today through hard work, dedication, drive and once he made the decision to be a doctor of dentistry there was no going back. He did not want to stop until he got where he wanted to be. We next talked about what it's like for him to own his own business. He said that , "it has positives and negatives. But it is nice to be able to set your own hours and build equity in a business". Equity is defined as a tangible asset that one can sell. I then asked if he could, if he had the option, to work for someone else or work for himself what would he choose? He said that he would want to work for himself, but would then like to sell his business in a few years and work for someone else. He said that what influenced him the most in becoming a dentist was that he had braces twice. Once in Mexico, and another time which totaled up to be six years in braces. I then asked what his title of general dentist meant. He said that it means, "that it is a dentist who has a multidisciplinary approach in correcting oral health in the realm of dentistry."

By: Madi Shatto

Insight into a Nurse Practitioner

Nurse Practitioners are quickly becoming the first choice for millions of patients. As clinicians that blend clinical expertise in diagnosing and treating health conditions with an added emphasis on disease prevention and health management, Nurse Practitioners provide important insight into any health situation.

Theresa Hill RN, MSN, OCN,ANP-BC, (an Oncology Nurse practitioner) gave me an inside look into the world of Oncology and how she got to where she is now.

A career as a nurse practitioner is something Hill has felt led to pursue from a young age. As a teenaager, she felt convicted from an admirable desire.

"My inspiration for being a Nurse was that ever since I was 13, I felt very called to help others, Hill said. "It was funny, because at first, I promised myself that I would never be a Nurse Practitioner," Hill said. "But look where we are now."

"I started out at Amarillo College for my Associates degree," Hill said. "After that, I was working as an RN and finishing up my bachelors degree which took me an extra year because I partied too much."

Hill quickly realized the dedication and application necessary to achieve a successful career in her industry. It came from lots of late work nights. Throughout most of her academic career, Hill worked full-time.

"All throughout while I was working on my Bachelor's at West Texas A&M, to my Master's at the University of Phoenix and then at Texas Women's for Post Masters, which took two and a half years, I was working full time," Hill said.

Hill has been married for 20 years. She and her husband, Kellen, have three children- Brekkin, Emily and Wyatt. It's a

balancing act- managing her career and her family life, but a challenge she doesn't back down from.

"I get asked a lot about how I manage a family with such a time-consuming job," Hill said. "Having a family while being a nurse is actually ideal in my world," Hill said.

Despite its strenuous nature in the work itself, Hill's hours on-duty vary extremely, and at her current job, she's earned flexibility in her weekly work schedule.

"Nursing is flexible unless you're working in a Clinic, and then it becomes tricky," Hill said. "But as your rank moves up, you can decide your schedule more."

Hill also took time to offer advice to any student that might be weighing their options within the field ahead of pursuing a path in their career. Furthermore, she implored them to follow the advice of connections made.

"It's all a matter of what best suits you and also the future of medicine," Hill said. "You have to have trusty advisors to guide you in the right path for this ever changing industry."

When one speaks with Hill, it's clear to see her passion for her industry on full display. She knows the value of hard work, and sees the merit in the wide variety that a career in being a nurse practitioner has to offer. Above all, she didn't skirt the importance of personal pursuit, and finding one's niche in such a personal, helpful field.

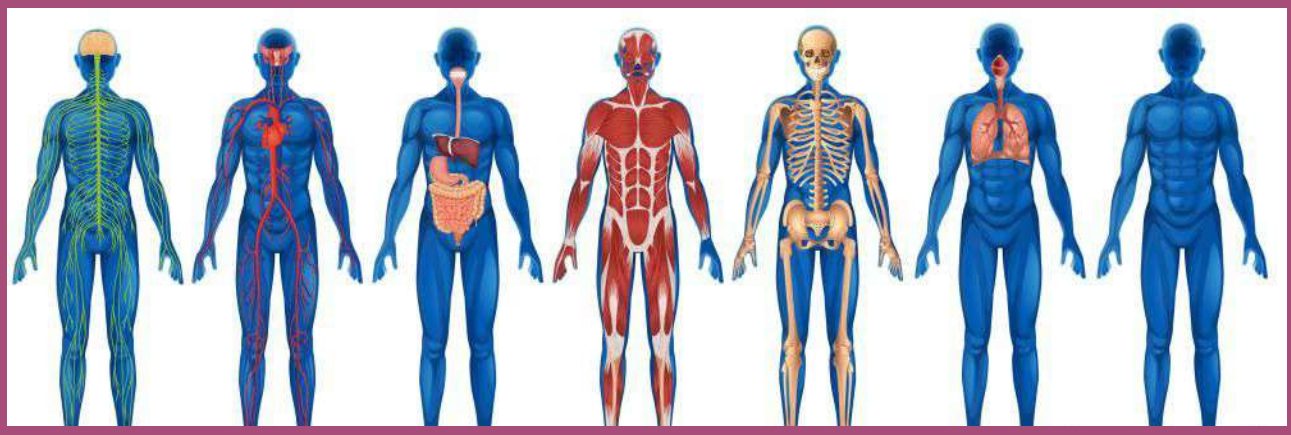
"That's the great thing about Nursing, you can do ANYTHING," Hill said.

By: Miranda Jones

Sub-editor:
Kasandra Albarran

ANATOMY & PHYSIOLOGY

Bria Ammirato & Natalie Boudewijn



INCLUDED

Respiratory System by Bria Ammarato

Nervous System by Natalie Boudewijn

WHAT IS ANATOMY AND PHYSIOLOGY?

Anatomy is the study of body parts and their structure, while physiology is the study of the function of body parts and the body as a whole.

WHY ARE ANATOMY AND PHYSIOLOGY IMPORTANT?

Anatomy and Physiology focus on chemical makeup and how it pertains to life. The systems outline the primary pedagogy and theoretical ideas that are required to perform in the medical profession. Knowing and understanding these systems are vital in order to treat, diagnose and care for patients.

The Brain and the Nervous System

The nervous system, by definition, is an ‘’organized group of cells specialized for the conduction of electrochemical stimuli’’ (www.britannica.com) that fire in response to sensory receptors. However, the nervous system and the brain as a whole are so much more than that.

The building blocks of the nervous system are microscopic cells called neurons. The neurons themselves are capable of conducting electrical impulses that are used to communicate between the neurons to carry out functions and tasks. When the dendrites of a neuron transmit the impulse to the cell body, it interpretes the impulse and produces a chemical messenger, called a neurotransmitter, that is carried through to the axon and packaged into axon terminals. From there, the molecules are released at the synapse where the neurotransmitters cross the synaptic cleft and bind to a receptor site on the next receiving neuron.

There are several major neurotransmitters that our bodies most frequently produce, the most common one being acetylcholine (Ach). The main role of acetylcholine is to facilitate movement and help with learning, memory, and even REM sleep. A more well known neurotransmitter, dopamine, is responsible for both control over

voluntary movements and learning, attention, thought and emotion that guides our pleasure principle. Similarly, the chemical serotonin contributes to the regulation of mood, sleep, impulsivity, aggression and appetite.

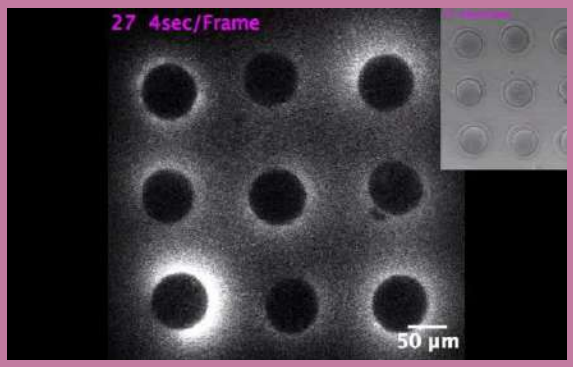
The brain is specialized in that each function is delegated to distinct region. The largest section, the cerebrum, is responsible for processing thoughts, judgements, and memory among several others vital functions. This portion can be further subdivided into four different lobes, each with their own set of roles. The frontal lobe is the specific section controls our personality, motor function, emotion, morals and more that decipher who we are. The parietal is responsible for our communication skills, as this is where impulses are received and interpreted, specifically those pertaining to language. The occipital's task is limited to receiving and interpreting visual signals. The last portion, the temporal lobe, stretching across the left and right hemispheres of the brain, is responsible for our sense of both hearing and smell.

In tandem, the brain and nervous system give us not only our reflexes and movements, but also our personalities and interpretations of the world. They control our emotions, tell us to breathe faster or slower, give the command to cry or laugh or even both. In short, the brain and nervous system in unison make up who we are and our uniqueness but simultaneously help do the most vital job: keeping us alive.

Formation of Life

The formation of life is the exact definition of natural allurement. The process is captivating and the formation is exceptional in its complexity. The interaction between egg and sperm is that of no other and through the reactions that take place between the two, we get the intricacy of human life.

From the moment of ejaculation, to which "100 million to 300 million sperm" ("Whattoexpect") enter the vaginal cavity, the possibility for life is fabricated. But it should be with hardship. Majority of the sperm should parish upon entry, due to the female body recognizing sperm as foreign. In response, the seminal fluid coagulates around the sperm as a protective barrier, nourishing and preventing entry into the wrong fallopian tube, until the sperm comes to the more favorable environment where the egg lays in wait. The surviving sperm battle in time for the ability to penetrate the zona pellucida. A protein on the surface of the sperm cell, Izumo1, allows for contact with the egg, binding to the egg's protein, Juno. The Izumo-Juno pairing "is very weak", but is also an "essential interaction for sperm-egg recognition" (Connor). As the victor penetrates the egg, the encounter leaves literal sparks. The sperm introduces a "surge of calcium which triggers the release of zinc from the egg" (Connor). The fluorescent light produced indicates the fertility of the egg, producing brighter emissions being more efficient for conception. As well the zona pellucida adjust briskly upon fertilization, preventing penetration from multiple sperms. Concluding such a series of chemical reactions, an embryo reside to grow and strive into the complexity of life.



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