# Speak Out

### APRIL ISSUE - CHANGE FOR THE BETTER



# The Introduction of Women in Politics

As long as women are not present in political procedures, democracy and development will remain an illusion. The gender gap in politics is still prominent today, despite the policies and legislations put in place. In Lebanon, women account for 4.7% of the parliament; globally, it's 25.5% (by combining the lower and upper houses of parliaments)... (Full article on page 3)



# The Black Lives Matter Movement

...Their reality is shocking when parents have to educate their young children on how to act if the police were ever to approach them, when 1 in every 1000 black men can expect to be killed by the police, when 1004 men were shot by police in 2019 alone, and when the several unfortunate deaths in 2020 resulted from continuous prejudice and a corrupt and racist justice system... (Full article on page 14)



# Inventions that Revolutionized Heart Health

The leading cause of death worldwide, cardiovascular diseases account for approximately 27% of deaths globally. Hence, ongoing research in the field of cardiology has been rooted upon developing innovative strategies to help prevent and manage heart disease. Before transitioning to introducing inventions that have revolutionized heart disease management... (Full article on page 17)



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### The Introduction of Women in Politics

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"The true republic: men, their rights, and **nothing more**; women, their rights, and **nothing less**." - Susan B. Anthony, American women's rights activist.

As long as women are not present in political procedures, democracy and development will remain an illusion. The gender gap in politics is still prominent today, despite the policies and legislations put in place. In Lebanon, women account for 4.7% of the parliament; globally, it reaches 25.5% (by combining the lower and upper houses of parliaments). However, women's progression in politics begins with awareness. Insights in political movements and achievements are essential to recognize the importance of women in power.





### The Women's Suffrage Movement

Suffrage is the right and privilege to vote during political elections.



Democracy all began in Ancient Greece, particularly Athens, in the 5th century B,C.. Citizens (starting from 18 years old) were encouraged to vote for governmental policies and jurisdictions, directly and equally. However, the conditions to vote did not demonstrate equality. Athenian women were not allowed to own property, engage in elections, and partake in the government. In reality, women, slaves, and foreigners were not considered citizens and had no way of becoming one. The percentage of men, specifically citizens, was significantly lower than the rest (approximately 10% - 30% of the Athenian population).

### Modern Suffrage Movement

Despite the reintroduction of elections in the 17<sup>th</sup> century, women got excluded from any voting procedures. Suffrage movements have sparked worldwide, to raise awareness on the rights that women never had and how that was no longer an option.

#### Worldwide

### UNITED STATES OF AMERICA

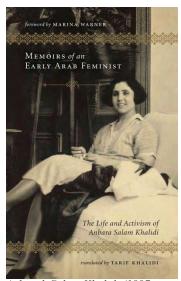


Abigail Smith Adams (1744-1818)

"Remember the Ladies," she said to John Adams, her husband and second president of the US, as he was establishing the American laws. He had disagreed with her proposal, as he considered that people who do not own property should not be able to vote. Up until 1776, votes were limited to landowners; that regulation excluded women and men of different ethnicities. New Jersey, however, decided that anyone - men or women - who owns a specific amount of land is eligible to vote. In 1807, that changed to only permitting tax-paying, white males to vote.

Year 1848	Key Events in the United States Women's Suffrage Movement "The Declaration of Sentiments" written by Elizabeth Cady Stanton, was presented at the Seneca Falls, New York Women's Rights Convention.	Important Figures  - Elizabeth Cady Stanton  - Lucretia Mott  - Frederick Douglass
1850	First <b>National</b> Women's Rights Convention held in Massachusetts	<ul> <li>Frederick Douglass</li> <li>Lucy Stone</li> <li>Pauline Wright Davis</li> <li>Sojourner Truth</li> </ul>
1869	Founding the National Woman Suffrage Association (NWSA)	Founders: - Susan B. Anthony - Elizabeth Cady Stanton - Lucy Stone - Lucretia Mott
1920	The ratification of the 19 <sup>th</sup> amendment: "Women's Right to Vote."	- Ida B. Wells - Alice Paul

### **LEBANON**



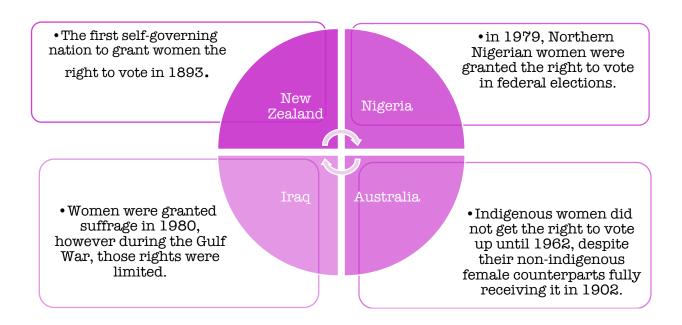
Anbarah Salām Khālidī (1897-1986)

1920: "when feminist activity began to take institutional shape, and Lebanese women's societies began to thrive." Anbarah Salam Khalidi, one of the most prominent Arab feminists, had mentioned the importance of women's participation in her memoirs. But most importantly, she made it loud and clear to all Lebanese people. Khalidi founded the Awakening of the Young Arab Women Association in 1914 to finance women's education. In 1920, female associations began the fight for women's political and civil rights. The Women's Union in Lebanon and Syria, being one example, advocated for fundamental female positions in political, cultural, and social sectors. Despite the reforms, women are still not fully independent in citizenship procedures.

Year	Key Events in Lebanon for the Women's	Important Figures
1924	Lebanese Women's Union organized conventions across the Arab region.	- Ibtihaj Qaddoura - Laure Thabet
1924-1925	The Society for Women's Renaissance was established to reduce the gender gap and boost the Lebanese economy.	- Najla Kfouri - Salma Sayegh
1928	The first Women's conference held in Beirut by the Women's Union.	<ul><li>Houda Doumit</li><li>Nour Hummadi</li><li>Anbara Salam Khalidi</li><li>Ibtihaj Qaddoura</li></ul>
1934	The bill to grant women the right to vote was not passed.	Deputy Sheikh Yussef Al Khazin
1952	Decree number 6 was passed, which states that educated women are allowed to vote. However, the protests did not end. All women had to be voting.	President Camille Chamoun
1953	Uneducated women were granted the right to vote, but <b>all</b> women have to be with their husbands or fathers while voting.	

### KEY FACTS ABOUT THE WOMEN'S SUFFRAGE MOVEMENT

Women globally took the initiative, starting with the International Council of Women, the first international NGO for women's rights. It was kickstarted by no other than Susan B. Anthony and Elizabeth Cady Stanton in 1888. However, some women wanted to take matters into their own hands to ensure that they receive their rights. In 1904, the International Women Suffrage Alliance (IWSA) got established for that purpose. The founder is Carrie Chapman Catt, who was also president of the council and a strong advocate for women's liberation. Situated in London, it now goes by the name of International Alliance of Women. It has actively participated with the Council of Europe, the African Union, the Arab League, and many others. Other key facts about the women's suffrage movement are as follows:



#### Powerful Women Politicians



Vigdís Finnbogadóttir (Born in 1930)

Vigdís Finnbogadóttir was the first woman in the world to be democratically elected. Serving as the fourth president of Iceland beginning of 1980, Vigdís was known for promoting Icelandic culture on a national and international scale. Using her career as a UNESCO Goodwill Ambassador, she made sure the world knew about the rich Icelandic traditions. Not only was Finnbogadóttir the first woman elected for president, but she was also the first to be reelected three times (she served a presidency of 16 years). She said: "I just wanted to prove a woman could run." And so, she did, not only to men in office but also to aspiring women. Women began increasingly participating in politics since then, thus making Iceland the world-leading nation in gender equality. In actuality, it ranks first in the Global Gender Gap index as of 2020.

Proscovia Alengot Oromait was the youngest Member of Parliament in Uganda and Africa as a whole. She was 19 when elected in September of 2012; being inspired by her deceased father, she used politics to advance the social, environmental, and health policies in Uganda. Many doubted Alengot, for she was merely a high school graduate at that time. However, she put it right past her as she continued to balance school and politics. When asked how she can do so, the young politician responded with: "Because I am a Christian, I do not booze (take alcohol). My free time is for the Bible and reading my novels...that is how my life is". A well-motivated woman, she has demonstrated to the world the importance of women - and young people - in office.



Proscovia Alengot Oromait (Born in 1993)



Alexandria Ocasio Cortez (Born in 1989)

Working at a bar to support her parents' income, Alexandria Ocasio-Cortez became the youngest person in the 116th Congress. Some of her achievements include passing legislation to dedicate \$5 million for opioid addictions, drafting more amendments than 90% of freshman lawmakers, coming up with the Green New Deal with the help of Senator Ed Markley, and more. Besides her many contributions, she stands up for herself and other women amidst rude comments. "It is cultural. It is a culture...., accepting of violence and violent language against women, and an entire

structure of power that supports that," she says about how she has heard multiple insults from congressmen. Refusing to be silenced, the Latina congresswoman has become a renowned role model for female politicians.



Jacinda Kate Laurell Arden (Born

Jacinda Ardern, the youngest female prime minister of New Zealand, is proof that a feminist approach to the COVID-19 pandemic is necessary. She immediately caught on to the crisis by closing New Zealand borders and announcing a nation-wide lockdown of 102 days. Even after several cases located in Auckland later on, the government opted for another lockdown. Her government's quick approach has made it one of the best global responses against COVID-19. "There is no widespread undetected community transmission in New Zealand. We have won that battle. But we must remain vigilant if we are to keep it that way," Arden says. Aside from her success in resolving the pandemic, Jacinda has marched in a New Zealand pride parade (making her the first New Zealand PM to do so) and has altered gun laws upon the 2019 mosque attacks. An inspiration to working mothers, she is the first leader to go on maternity leave.

Despite the many reforms done for women in politics, women of color remain the most marginalized during political procedures. However,

with the growing awareness of how female politics came about, silence is no longer an option in the face of discrimination.

<sup>&</sup>quot;We cannot change what we are not aware of, and once we are aware, we cannot help but change." - Sheryl Sandberg.

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### The Fall of the Berlin Wall

### GIO ABBOUD - IB1

### Introduction

On August 13, 1961, construction workers began tearing up streets and erecting barriers in Berlin. This night marked the beginning of one of history's most infamous dividing lines: the Berlin Wall. Construction continued for a decade as the wall cut through neighbourhoods, separated families, and divided not just Germany, but the world. (Jarausch)



Fig. 1. East German workers near the Brandenburg Gate reinforce the Berlin Wall in 1961. (Photo/research.archives.gov)

### **Background Information**

As World War II came to an end in 1945, the fate of Germany's territory was decided at two Allied peace conferences in Yalta and Potsdam. They divided the vanquished nation into four "allied occupation zones": The Soviet Union received the eastern half, while the United States, the United Kingdom, and (eventually) France received the western half.

Despite the fact that Berlin was completely within the Soviet sector of the country (it was about 100 miles from the eastern-western occupation zone border), the Yalta and Potsdam agreements divided the city into similar sectors. The eastern half was taken by the Soviets, while the western half was taken by the other Allies. In June 1945, the four-way occupation of Berlin began.



rg. 2. Fig. 3. The splitting of Germany (Fig. 2.) and Berlin (Fig. 3.) between the Allies at the conference

#### The Blockade and Crisis

As Soviet leader Nikita Khrushchev put it, the life of West Berlin, a conspicuously capitalist city deep within communist East Germany, "stuck like a bone in the Soviet throat." The Russians started manoeuvring to force the US, the UK, and France out of the city permanently. A Soviet blockade of West Berlin was launched in 1948 with the aim of starving the western Allies out of the region. Instead of retreating, the US and its allies used the air to supply their respective sectors of the region. The Berlin Airlift, which lasted more than a year and delivered more than 2.3 million tons of food, fuel, and other supplies to West Berlin, was a huge success. In 1949, the Soviets lifted the blockade.



Fig. 4. The Berlin Airlift

Tensions flared again in 1958, following a decade of relative calm. For the next three years, the Soviets blustered and threatened the Allies, emboldened by the successful launch of the Sputnik satellite the year before during the "Space Race" and humiliated by the seemingly endless influx of refugees from east to west (nearly 3 million after the end of the blockade, many of them young skilled workers such as physicians, teachers, and engineers). Summits, conferences, and other forms of negotiation have come and gone with no results.

In October 1961, the U.S. chief of mission in West Berlin, Alan Lightner, was stopped in his car by East German police. This prevention of access for American officials to East Berlin caused a standoff between American and Soviet tanks, which then faced off at Checkpoint Charlie for many hours. Both sides stared each other down waiting for their enemy to fire – the consequent potential for WorldWwar 3 was eventually averted when President John F. Kennedy contacted Nikita Khrushchev and convinced him to withdraw his tanks. The American tanks also backed away soon after.



Fig. 5. The Charlie checkpoint armoured standoff

Meanwhile, the refugee influx began. Around 19,000 people left the GDR via Berlin in June 1961. 30,000 people left the next month. 16,000 East Germans crossed the border into West

Berlin in the first 11 days of August, and 2,400 more followed on August 12—the highest number of defectors ever to leave East Germany in a single day.

To prevent further losses, East Germany decided to close the border, and that's where the Berlin Wall came in. Extending for 43 kilometers through Berlin, and a further 112 through East Germany, the initial barrier consisted of barbed wire and mesh fencing. Some Berliners escaped by jumping over the wire or leaving from windows, but as the wall expanded, this became more difficult. By 1965, 106 kilometers of 3.6-meter-high concrete barricades had been added topped with a smooth pipe to prevent climbing. Over the coming years, the barrier was strengthened with spike strips, guard dogs, and even landmines, along with 302 watchtowers and 20 bunkers. A parallel fence in the rear set off a 100-meter area called the death strip. There, all buildings were demolished and the ground covered with sand to provide a clear line of sight for the hundreds of guards ordered to shoot anyone attempting to cross. Nevertheless, nearly 5,000 people in total managed to flee East Germany between 1961 and 1989. Some were diplomats or athletes who defected while abroad, but others were ordinary citizens who dug tunnels, swam across canals, flew hot air balloons, or even crashed a stolen tank through the wall. Yet the risk was great. Over 138 people died while attempting escape.

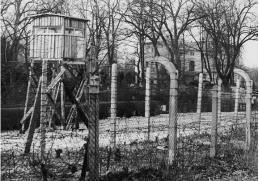


Fig. 6. The Berlin wall fortifications



Fig. 7. Two days after the wall was built, 19-year-old Conrad Schumann, an East German border guard, was photographed leaping over barbed wire toward freedom. Chronos Media GmbH/ullstein bild/Getty Images

### The Mistake

On November 8th, 1989, GDR official Gerhard Lauter was tasked with drafting looser travel regulations, meant to be a temporary pressure release. The new rules were finalized less than a day later, and read: "Private trips abroad can be applied for without conditions. Permits are issued on short notice." "Without conditions." That's the key phrase here. This meant the strict application requirements were eliminated, and anyone who wanted could leave East Germany and come back. That afternoon, the updated regulations were handed to government spokesman Günter Schabowski, just as he was about to begin a routine press conference.



Fig. 8. Gerhard Lauter



Fig. 9. Günter Schabowski

He had no time to review them before sitting in front of cameras. And as you can see from his handwritten "roadmap" of the press conference (Fig. 9), he scribbled in a reminder to announce

them at the very end. And on live TV at 6:53 PM on November 9th, he read the relaxed travel laws, for the first time, out loud.

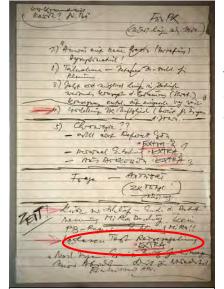


Fig. 10. Günter Schabowski's handwritten "roadmap" of the press conference

"Private trips abroad can now be applied for, without prerequisites, conditions, or family relationships."

When a journalist asks a straightforward follow-up question of when this plan goes into action, a confused Schabowski shuffles his papers and responds, "Immediately. Without delay."

"Read out text travel regulation"



Fig. 11. Günter Schabowski at the press conference

The thing is, if Schabowski had taken the time to read the new rules, he would have seen this on the last page: The new regulations were meant to go into effect the following day, in an orderly manner, when the passport offices were open. What happened next can only be described as a chain reaction. By 7:05 PM, the AP wire had already gone out: East Germany opens borders. And both East and West German nightly news reports announced the stunning policy reversal. East Berliners began gathering at the wall, and security officers tried to let them through slowly. But the final nail in the coffin came at 10:42 pm, when this broadcast triggered a mass rush: They actually weren't yet. But by this point, there was no going back. Tens of thousands of Berliners stormed the Wall, saying they heard on the news that they could cross. The outnumbered East German border guards were completely overwhelmed.





Fig. 12.

People from East Germany greet citizens of West Germany at the Brandenburg Gate in Berlin on Dec. 22, 1989, after the fall of the Berlin Wall the month before. PATRICK HERTZOG/AFP VIA GETTY IMAGES

#### Conclusion

The spokesman for East Berlin's Communist Party declared a change in his city's ties with the West on November 9, 1989, as the Cold War started to thaw across Eastern Europe. People of the GDR were free to cross the country's borders starting at midnight that day, he said. Berliners from both sides flocked to the wall, shouting "Tor auf!" ("Open the gate!") and drinking beer and champagne. They poured through the checkpoints at 12 a.m.

Over 2 million people from East Berlin traveled to West Berlin that weekend to take part in a festival called "the biggest street party in the history of the world" by one journalist. People knocked down sections of the wall with hammers and picks (known as "mauerspechte," or "wall woodpeckers"), while cranes and bulldozers pulled down section after section. The Berlin Wall was demolished soon after, and the city was reunited for the first time since 1945.

And it all happened unintentionally. The result of a rushed plan and a botched announcement, delivered in a small room at the end of a boring press conference.

"Forget not the tyranny of this wall ... nor the love of freedom that made it fall..." - Unknown, Graffiti on the Berlin Wall

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### The Black Lives Matter Movement

### STEPHANIE ZOGHBI - IB1

Rage, disgust and fear. These are just some of the emotions felt because of the inhumane acts of police brutality, racism, and discrimination faced by people of colour world-wide. Their reality is shocking when parents have to educate their young children on how to act if the police were ever to approach them, when 1 in every 1000 black men can expect to be killed by the police, when 1004 men were shot by police in 2019 alone, and when the several unfortunate deaths in 2020 resulted from continuous prejudice and a corrupt and racist justice system. This is their reality. Black people have been continuously wronged in the past and demand equality and the rights they deserve – thus leading to the Black Lives Matter Movement.

Black Lives Matter, also known as BLM, is a political and social movement protesting against incidents of police brutality and all racially motivated violence against black people. The movement began in 2013, following the shooting death of an African American teen, Trayvon Martin, 17 months earlier in February 2012. However, the movement has now risen in 2020 following the murder of George Floyd. An estimated 15 to 26 million people participated in the 2020 BLM protests in the United Sates and is reported by *Civics Analytics* to be one of the largest and most influential movement in U.S



history. As a result of such a monumental movement, several significant changes for the better have resulted from the BLM movement – economically, socially, politically and emotionally.

The BLM movement has brought necessary attention to the reality black people face in their everyday life. A positive change that has been brought about is the support of small, black-owned businesses. Supporting these businesses has been indicative of support of the Black Lives Matter movement and in pursuit of balancing the financial needs of entrepreneurs and business owners alike. It is also an effort of balancing the financial scales between white-owned and black-owned businesses in order to promote equality economically. This initiative is desperately needed due to the lack of impartiality in black business ownership. Of the 5.7 million US firms, about 124,00



(a little more than 2%) were Black-owned in 2017 (Schouten, CNN). However, due to the uprise in the BLM movement, the *Bank of America* has pledged 1 billion dollars over four year to address racial inequality, *NASCAR* has banned the Confederate flag from its events and properties, *Ben & Jerry's* called for Americans to "dismantle white supremacy" and many social-media influencers have turned over their accounts to Black Business owners. This

massive support has benefited many and we have to ensure this growth is sustained in order to ensure long-term equality financially for people of colour everywhere.

Furthermore, the BLM has made a long-lasting global impact on the significance of racism and discrimination. For too long, ethnic minorities have been denied equitable access to opportunities, services and fundamental human rights. However, as a result of the BLM protests, they have inspired a number of laws. Although we shouldn't recognize or judge a movement by its legislative power, it is important to acknowledge the changes towards a more equal



future. For instance, in Louisville, Kentucky, the police killed Breonna Taylor in a no-knock warrant, by shooting her. Since then, on May 30<sup>th</sup>, the mayor suspended the no-knock practice and the Public Safety Committee unanimously approved the "Breonna's Law". People have also seen the true colours of police forces when they disrupted many peaceful protests. On June 6<sup>th</sup>, a survey in the form of a spreadsheet about police brutality was brought to light by activists. In fact, 59% of those surveyed said they found police violence more troubling than protest violence, as opposed to only 27% who felt the other way around. It was also reported by the *New York Daily News* that a survey found U.S. citizens' approval of police officers had dropped 10% in that same week. Researchers have stated this movement is monumental and a unique moment in American history.



This movement has also changed politically for the better. Since 2016, when Donald Trump was elected at the president of the United States, black activism and racial justice has been misguided; yet the BLM movement has persevered despite this. Some examples are: four days after killing George Floyd, police officers at the scene were charged with second-degree murder; Minneapolis lawmakers vowed to disband the city's police department less than two weeks after Floyd's death; Mayor Bill de Blasio of New York City pledged to move funding from the city's police toward youth and

social services; and new databases have been set up to collect video footage that documents police violence at demonstrations. Symbolic actions have also been undertaken such as the toppling of several confederate and slavery-linked statues such as statues of Confederate President Jefferson Davis, Columbus, Raphael Semmes (an officer in the Confederate navy during the American Civil War) and many more as an act of rewriting history and having a clearer focus for the future of cities.

Moreover, the movement that evolved from a hashtag into a global movement has massively impacted people emotionally and reminded of the importance this movement plays in our lives

through various forms. The main emotion was of resentment towards America's anti-black past and present, police brutality, social inequality and many others. Pertinent figure former US president Donald Trump controversially tweeted 4 days after George Floyds death, "These THUGS are dishonoring the memory of George Floyd [...] when the looting starts, the shooting starts. Thank you." Such degrading statements and usage of words only supported the reason why protesters began demonstrating in the first place: to fight such racial demonization and inequality. Addressing demonstrators as 'thugs' goes to show how degrading and malicious the image associates with criminality and discriminates the black race entirely. In addition, the use of social media has impacted the movement through the activism shown internationally in support. Many posts, such as on Instagram, have received millions of likes, comments and shares in order to promote awareness. This movement is a rallying cry, backed by emotion that represents the continuous injustice black people face. It's to eradicate white supremacy, to build local power, to remember the victims of racism and prejudice, to unite hand in hand as one force to demand the rights they deserve. These emotions are indescribable and are a driving force of power for this significant movement.

To conclude, this movement is one that has not been seen before, one that caught the eyes of everyone. We can only show our support by spreading strong messages to raise awareness, educating ourselves and others on racism, reaching out to people of colour we know to ask how they are coping during such an emotional time, evaluating ourselves and making necessary changes. We must never forget this movement and not stop fighting. We are all human and deserve equal rights and with such a strong drive the BLM



movement embodies, there is hope this change is for all the better.

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# Inventions that Revolutionized Heart Health

### CARL SADEK - Sec I LP

The leading cause of death worldwide, cardiovascular diseases account for approximately 27% of deaths globally. Hence, ongoing research in the field of cardiology has been rooted upon developing innovative strategies to help prevent and manage heart disease. Before transitioning to introducing inventions that have revolutionized heart disease management, it is essential to discuss the causes of this disease.



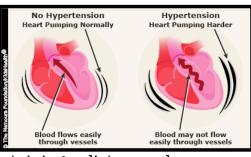
### Causes of heart disease:

The 3 main causes of cardiovascular disease (CVD) are:

- **Tobacco consumption**: Responsible for 10% of deaths caused by heart disease, cigarette smoke can cause CVD by contributing to the building of plaque—a waxy substance that blocks the arteries, leading to a disease called atherosclerosis. Moreover, the contamination of blood with the toxic chemicals present in cigarettes further elevates the risk of CVD.
- Excessive alcohol consumption: Studies have shown that excessive alcohol drinking can elevate blood pressure levels. As a result, hypertension puts more strain on the heart, thereby increasing the risk of CVD.
- **Unhealthy diets**: An unhealthy diet is one that entails high levels of saturated fat, salt, and insufficient consumption of fruits and vegetables. Maintaining a diet as such can cause

obesity, high blood pressure, and uncontrolled diabetes, all of which have a detrimental effect on the function of the heart. For instance, insufficient intake of fruit and vegetables is estimated to cause around 11% of ischemic heart disease deaths and about 9% of stroke deaths globally. Hence, a low-saturated fat, high-fibre, plant food diet can noticeably reduce the risk of developing heart disease.



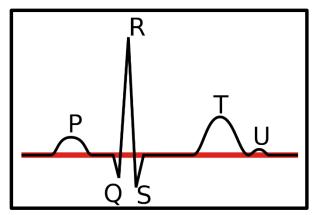


Now that we have introduced CVD and its causes, it is time to shed light on some of the most notable milestones in the advancement of cardiac surgery.

### 1. Electrocardiography:

a. In the late 19th century, research in the field of cardiology mainly revolved around the electrical activity of the human heart. However, the pioneer in the field of

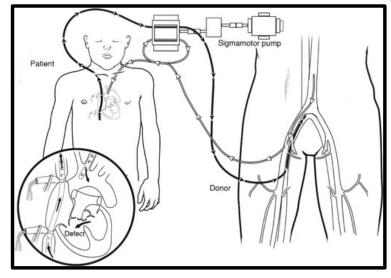
Waller, said, "I do not imagine that electrocardiography is likely to find any very extensive use in the hospital." Well, little did he know that his statement fuelled researcher Willem Einthoven to create arguably the most notable invention in the history of cardiology: The electrocardiogram. Indeed, after years of exploration in the field, Einthoven finally detected



recognizable waves in the human heart in 1895, which he labelled "P, Q, R, S, and T." Moreover, the limitations of the capillary electrometers available at the time provoked Einthoven to devise a string galvanometer to record cardiac electrical activity, which he called the electrocardiogram. In 1924, the researcher was awarded the Nobel Prize in medicine, for creating a mechanism that revolutionized the field of cardiology for decades to come. Up till this day, the EKG developed by Einthoven almost 100 years ago is still extensively used in medical centres around the world.

### 2. Dr C. Walton Lillehei's cross-circulation technique for VSD:

- a. Ventricular Septal Defect (VSD) is a disease characterized by the presence of a
  - hole in the muscular wall that separates the 2 ventricles of the heart, which can lead to the mixing of oxygenated and deoxygenated blood
- b. On the 26th of March 1954, Dr C. Walton Lillehei and his team conducted the first repair of VSD on a 1-year-old child using a cross-circulation method. With the child's parent acting as the biological oxygenator in the experiment, the VSD was



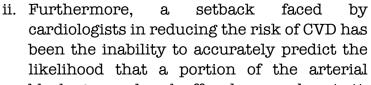
closed during just 19 minutes of cross-circulation support. As a result, Lillehei became the first doctor to successfully treat VSD, paving the way for decades of innovative surgery techniques in the field.

### 3. Modern research and inventions to reduce the risks of CVD:

a. Ever since Michael Davies discovered that heart attacks were caused by blood clots in 1976, the mortality rate from CVD has been on a steady decline. Indeed, this discovery paved the way for lifesaving procedures that can help prevent CVD and manage its detrimental effects:

i. In order to help accurately predict and mitigate risks of heart disease, newer

therapies that use genetic data, artificial intelligence, and injectables have been introduced into the testing process.





- blockage may break off and cause a heart attack. Thus, scientists have made progress in testing for chemicals produced by the body during inflammation, in hope of developing a biomarker that can accurately predict the probability of an arterial blockage.
- iii. In addition to that, a study published in the Journal of the American College of Cardiology (JACC) discusses researchers' attempts to develop a genomic risk screening system for heart attack prevention. Along these lines, the scientists are in the process of developing an algorithm to accurately predict heart risk, using a patient's genetic profile.

In conclusion, the causes of heart disease are many, and thus, it is our responsibility to abide by preventative measures that can help reduce the risks of developing CVD. Moreover, research aiming to mitigate the risks of heart disease began in the late 19<sup>th</sup> century and is still underway to this day. Given it is my ambition to become a cardiologist in the foreseeable future, I hope to follow in the footsteps of notable researchers in the field and contribute to developing a unique mechanism that can further reduce the fatality of CVD.

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