

The War on Research

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“Work Will Set You Free”

It's 2 am on a cold winter night when the phone rings. You know it has to be your teenager who is overdue from a snowmobile trip with a friend but instead, it's a police officer. She is calling to tell you that your teen was found unconscious in the forest with severe injuries and hypothermia. The doctors are forming a plan to reattach their severed hand but first, they need to treat them for hypothermia and frostbite. If they survive, the risk of infection will have to be handled before they can perform surgery. Today, these medical procedures are not only doable but even considered mundane because of decades of knowledge gained from trial and error experimentation. Many would agree that hands-on experience is best, although, in the period of World War II some doctors did not wait for an injured party to try and solve these medical mysteries. Some people volunteered under the false hope that “Work would set them free”. Most

¹ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/view-of-the-main-entrance-to-the-auschwitz-camp.

had no choice because they were considered disposable and were treated as such. There is no denying that society gained immensely in terms of medical care, however, it was at the death of thousands of concentration camp prisoners. For example we would not have the research that lead us to the first successful limb and organ transplants. Would you have changed your mind and not have allowed these treatments to be done on your child because they were unethically sourced? Many debates have arisen on the ethicality of using this research in modern medicine.² During World War II, tragedy ran rampant all over the world. The worst tragedy was the cruel medical experiments performed by doctors under the Nazi regime. Hundreds of people in concentration camps had their lives taken from them for military and medical gain. These experiments were a tragedy because they took people's lives, loved ones and humanity. Modern medicine triumphed greatly and would not be what it is today without them. It would be ignorant and unjust if we did not use this research to help people today.

The concentration camps that were home to the experiments were created by the S.S. in order to hold political prisoners and start testing procedures for the Final Solution and mass sterilization.³ The first concentration camp established was Dachau in March of 1933 for the purpose of holding political prisoners. It became an example and the gold standard for other concentration camps to follow, most notably was Auschwitz.⁴ While historians have not found all of the research and details of the experiments in

² "Nazi Medical Experimentation." *Suleyman*, www.jewishvirtuallibrary.org/the-ethics-of-using-medical-data-from-nazi-experiments.

³ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/concentration-camps-1933-39.

⁴ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/concentration-camps-1933-39.

these camps, they were able to find a large amount that helped medicine all over the world improve theories and practices. We can categorize the experiments performed as one, the War Experiments, two, Exploratory Drug Tests and Surgeries, and three, Heredity and Sterilization Experiments.⁵

The war experiments are so named because they were performed for the purpose of helping German soldiers in the war survive extremes including high altitudes, extremely cold temperatures, and drinking ocean water when lost at sea. Doctor Sigmund Rascher was in charge of two of these experiments- the high altitude, and freezing experiments. Doctor Hans Eppinger was in charge of the sea water experiments. All three of these experiments took place at the Dachau Concentration Camp, and were labeled as "Military Necessity". Many scholars and doctors today believe that this research and discoveries from it should not be cited in medical textbooks because of the cruel nature of the experiments. If we did not have this research, no matter how cruelly it was collected, thousands of more people would be dead today from high altitude exposure and hypothermia.

One of the most prominent war simulation experiments was that of the high altitude and elevation studies. The purpose of this experiment was to find a way to save German war pilots from hypoxia when they were forced to deploy their parachutes at high altitudes.⁶ This experiment was performed by Dr. Sigmund Rascher on prisoners at the Dachau Concentration Camp. For this experiment, the doctors used compression

⁵ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/nazi-medical-experiments.

⁶ Hypoxia_ Oxford Dictionary (Deficiency in the amount of oxygen reaching the tissues.)

chambers to simulate altitudes over 60,000 feet.⁷ The physical responses of the test subjects would be monitored as the altitude began to affect them. Through live brain dissections, performed by Rascher himself, it was learned and proved that small air bubbles formed in blood vessels in parts of the brain.⁸ Without the sacrifice of those exposed to this torture, we would not know how pilots could safely eject from planes when there is a lack of oxygen.



Two prisoners from Dachau in the middle of the High Altitude experiment; they have reached the point where they have lost consciousness. Their identities are unknown.

⁷ "Nazi Science." *Lapham's Quarterly*, www.laphamsquarterly.org/medicine/nazi-science.

⁸ "Denis Jordanet: The Physiologist Who Discovered the Role of Low Blood Oxygen at High Altitude." *ScienceDaily*, ScienceDaily, 10 Aug. 2013, www.sciencedaily.com/releases/2013/08/130810063315.htm.

⁹ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/medical-experiment-performed-at-the-dachau-concentration-camp.

¹⁰ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/medical-experiment-at-dachau.

Another experiment that greatly affects us today is the hypothermia experiments. The reason these experiments were performed was that doctors wanted to know how to rewarm German air force soldiers who were stranded in the North Sea after being shot down by enemy forces. This experiment was performed by Dr. Rascher on male prisoners; most were forced into the experiments; however, some volunteered because of promises that were not kept¹¹. The effects of hypothermia were simulated by putting the test subjects into ice water in various states of dress and consciousness. They would then go through a rewarming process if they hadn't already frozen to death.¹² Several methods included hot sleeping bags, boiling water baths, and the use of another's body heat. On average, thousands of people get hypothermia each year; however, without the research done by doctors at Dachau, we would not know how to help those who have been affected by hypothermia today.

¹¹ "Nazi Science - The Dachau Hypothermia Experiments | NEJM." *New England Journal of Medicine*, www.nejm.org/doi/full/10.1056/NEJM199005173222006.

¹² "Nazi Science - The Dachau Hypothermia Experiments | NEJM." *New England Journal of Medicine*, www.nejm.org/doi/full/10.1056/NEJM199005173222006.



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Dr. Rascher and another Doctor at Dachau performing the hypothermia experiment on a prisoner.

The final experiment that was done for the sake of the war was the sea water experiments. The essential idea behind it was that if soldiers were stranded at sea, they would need to find a way to get fresh water to survive. Like the other war experiments, this experiment was run at the Dachau Prison Camp by Dr. Hans Eppinger. They subjected nearly 100 Roma Gypsies to the cruelty of this experiment; they would be starved for days then forced to drink salt water and salt water mixed with saline for days.¹⁴ Those experimented on were subjected to tragic side-effects such as diarrhea, hallucinations, convulsions, and death. From this experiment, we gained medical knowledge on the properties of salt water when ingested. We now know that when we drink salt water, we will become extremely dehydrated and slowly die.

Other experiments, known as Exploratory Drug Tests and Surgeries, were extremely cruel and appalling. However, they have produced some of the most critical

¹³ "Pseudo-Medical Experiments in Hitler's Concentration Camps." *Medical Review Auschwitz*, www.mp.pl/auschwitz/translations/english/170062,pseudo-medical-experiments-in-hitlers-concentration-camps.

¹⁴ *PBS*, Public Broadcasting Service, www.pbs.org/wgbh/nova/holocaust/experiside.html#seaw.

research used in modern medicine to date. These experiments were performed solely for the purpose of gaining medical knowledge on new procedures and medicines. This type of experimentation includes one, the transplantation of limbs, bone, muscle, and nerve tissues.¹⁵ Two, the testing of Sulfanilamide drugs on infected wounds, and three, the testing of immunization drugs on illnesses such as malaria. Thousands of inmates died from these experiments; however, without this research collected from them, medicine would not be as advanced as it is today.

The experiments that focused around the transplanting of bone, muscle, and nerve tissue can be considered as the most sadistic because it involved the removal of entire limbs and the removal of sections of bone, muscle, and nerve tissue. This experiment was carried out at the Ravensbrück Concentration Camp by Dr. Herta Oberheuser.¹⁶ In testimony, Dr. Zofia Maczka¹⁷ states that in one or both legs, the bones would be broken into several pieces by a hammer. She also states that when muscle was removed, it was always in the same place. At the Nuremberg Trials it would have been the belief of many that the only evidence left of these experiments was those who survived them; however, that was not the case. Those in the camps took clandestine photos of their injuries to document them.¹⁸

¹⁵ "The Evolution of Medical Ethics." *The Hippocratic Oath*, [owlspace-ccm.rice.edu/access/content/user/ecy1/Nazi Human Experimentation/Pages/Bone Grafting.html](https://owlspace-ccm.rice.edu/access/content/user/ecy1/Nazi_Human_Experimentation/Pages/Bone_Grafting.html).

¹⁶ "The Evolution of Medical Ethics." *The Hippocratic Oath*, [owlspace-ccm.rice.edu/access/content/user/ecy1/Nazi Human Experimentation/Pages/herta oberhauser.html](https://owlspace-ccm.rice.edu/access/content/user/ecy1/Nazi_Human_Experimentation/Pages/herta_oberhauser.html).

¹⁷ "Doctors from Hell." *Google Books*, books.google.com/books?id=_VH-7oeT4IEC&pg=PA116&lpg=PA116&dq=Zofia+Maczka&source=bl&ots=7SHyWwz1iC&sig=ACfU3U2pviPCHUjPjKZ6nG31uTw0Qbrk5g&hl=en&sa=X&ved=2ahUKEwjYoPCEna_gAhVk04MKHcXRBrkQ6AEwCXoECAUQAQ#v=onepage&q=Zofia_Maczka&f=false.

¹⁸ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/nazi-medical-experiments.



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This is one of the clandestine portraits taken behind the barracks at Ravensbrück. Pictured is a woman named Bogumila Jasuik who was experimented on several times in 1942.

These experiments caused death to most patients and severe mutilation to the survivors. Although the majority of those subjected to this torture did not need muscle, bone, or nerve tissue removed, it was anyway. Therefore, it is arguable that this experiments was one of the most tragic and unethical. As for the transplanting of limbs to another body, the test subjects almost all died because of their body rejecting the limb. If this experimentation was continued with better technology then, it is possible the Nazis could be credited with the first successful limb transplant.

Along with forced injury, Sulfonamide or “Sulfa” drugs were tested on the prisoners in the concentration camps to combat infection. This experiment was also performed at the Ravensbruck Camp by Dr. Oberheuser. The injuries needed in order to test if Sulfa drugs would cure an infection was simulated by wounding the victim and then rubbing various substances into the wound to infect it. Some of these substances included dirt, glass shards, rusty nails, and wood (these are the only documented

¹⁹ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/nazi-medical-experiments

substances, although there is likely to be more that were undisclosed)²⁰. Many inmates died from their injuries; those that survived were mutilated severely. They used their permanent scars to sentence many of the Nazi doctors during the Nuremberg Trials.²¹ We still use Sulfa drugs to treat infection today and without the knowledge of what we can treat with them, many people would die from infection today.

One of the lesser known experiments with a lower death toll than others was the Malaria experiments. They were performed at the Dachau Concentration Camp by Dr. Schilling and Professor Dachfinney on roughly 1,000 prisoners, with the purpose of trying to find a treatment option or immunization.²² Patients were infected in two ways. The first way of infection was through being bitten by mosquitos that were carriers of Malaria. The second way of infection involves the injection of various quantities of Malaria infected blood into the victim's bloodstream. This process was repeated until the desired severity of disease was reached. Then the victims were treated with a range of drugs including Quinine and Ephedrine. Many of the inmates or “guinea pigs” that were tested on did not survive the experiments; those that did survive suffered tragic pain and disability.²³ While this research did not provide an immediate cure, it provided us with a base to build a cure off of to where today, we can use multiple drugs to cure Malaria.

²⁰ www.jewishvirtuallibrary.org/the-ethics-of-using-medical-data-from-nazi-experiments.

²¹ PBS, Public Broadcasting Service, www.pbs.org/wgbh/nova/holocaust/experiside.html.

²² *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/nazi-medical-experiments.

²³“Doctors from Hell.” *Google Books*,

books.google.com/books?id=_VH-7oeT4IEC&pg=PA116&lpg=PA116&dq=Zofia+Maczka&source=bl&ots=7SHyWwz1iC&sig=ACfU3U2pviPCHUjPjKZ6nG31uTw0Qbrk5g&hl=en&sa=X&ved=2ahUK EwjYoPCEna_gAhVk04MKHcXRBrkQ6AEwCXoECAUQAQ#v=onepage&q=Zofia Maczka&f=false.

Possibly the most infamous experiments performed by Nazi doctors during WWII were those that dealt with twins, heredity, and sterilization. The man who is credited for these nightmare-worthy experiments is named Josef Mengele, The Angel of Death.²⁴ Due to Mengele's sick fascination with twins and heredity, it is not surprising that he would also experiment with the sterilization of Jewish women. Mengele was never tried for his crimes at Auschwitz. It was only after his death we realize that he went under the name Wolfgang Gerhard to travel to Brazil. In Brazil a town named Candido Godoi or more popularly "Twin Town" claims to have been visited by a German man posing as a veterinarian and offered medical treatment to farm animals and pregnant women. Jorge Camarasa²⁵, an Argentinian historian believes that this stranger offering medical treatment was Dr. Mengele and that his genetic experiments were successful after all. No one has been able to explain why in Candido Godoi, one in five pregnancies result in twins, the majority of which have blond hair and blue eyes; therefore, these strange occurrences are speculated to be caused by Dr. Mengele.

The infamous twin experiments were performed on twins of all ages who were submitted into the camps. These experiments were the brainchild of Dr. Mengele, who had a sick fascination for heredity since he studied under Dr. Otmar Freiherr von

²⁴ Stockton, Richard. "The Sickening Experiments Of Dr. Josef Mengele, The Nazi 'Angel Of Death.'" *All That's Interesting*, All That's Interesting, 19 Dec. 2018, allthatsinteresting.com/josef-mengele-nazi-experiments.

²⁵<https://www.telegraph.co.uk/news/worldnews/southamerica/brazil/4307262/Nazi-angel-of-death-Josef-Mengele-created-twin-town-in-Brazil.html>

Verschuer who studied heredity and cleft palate.²⁶ Mengele arrived at Auschwitz in 1943, where he soon began to study heredity on physical traits. Identical twins were perfect for his research because he could isolate specific genetic factors through comparison.²⁷ The most common experiments involved observing and measuring every part of one of the twin's bodies and then comparing the measurements to the other twin. Another common experiment involved injecting both twins with multiple substances to see if they had the same reaction. Eva Mozes Kor and her twin sister Miriam were both experimented on at Auschwitz. Neither sister died in the camps, but Miriam died later on from birth complications that are believed to have been a result from her time in the camp.²⁸ The twin experiments were not considered to possibly be successful until the discovery that "Twin Town" in Brazil was visited by a German veterinarian after World War II, around the same time that Dr. Mengele fled to South America like many other Nazi war criminals.

²⁶Stockton, Richard. "The Sickening Experiments Of Dr. Josef Mengele, The Nazi 'Angel Of Death.'" *All That's Interesting*, All That's Interesting, 19 Dec. 2018, allthatsinteresting.com/josef-mengele-nazi-experiments.

²⁷ Stockton, Richard. "The Sickening Experiments Of Dr. Josef Mengele, The Nazi 'Angel Of Death.'" *All That's Interesting*, All That's Interesting, 28 Feb. 2019, allthatsinteresting.com/josef-mengele-nazi-experiments/2.

²⁸ Sedley, David, et al. "Video of Holocaust Survivor Forgiving Mengele Goes Viral." *The Times of Israel*, www.timesofisrael.com/video-of-holocaust-survivor-forgiving-mengele-goes-viral/.



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Pictured are twin sisters Eva Kor (left) and Miriam Kor (right), they are the first two children in line and are wearing the striped jackets.

It is well known that the Nazis had multiple ideological and racial goals, such as the elimination of “inferior” groups like the Jewish people and the Gypsies.³⁰ They sought to find a way to slowly eliminate them instead of killing them all right off; what they were looking for was an effortless and quick way to sterilize the men, women, and children in the camps. This experiment took place at the Auschwitz and Ravensburgh concentration camps in multiple forms. The inmates were rarely anesthetized so all of the sterilization methods were tragically done while the victims were awake.³¹ These methods included surgery, injections of various substances, drugs, and constant X-rays.

²⁹ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/child-survivors-of-auschwitz.

³⁰ *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/nazi-medical-experiments.

³¹“Pseudo-Medical Experiments in Hitler's Concentration Camps.” *Medical Review Auschwitz*, www.mp.pl/auschwitz/translations/english/170062,pseudo-medical-experiments-in-hitlers-concentration-camps.

The majority of these experiments were successful, but still caused permanent damage to the inmates. The research collected from this experiment is used more for medical knowledge than in actual medicine.

Imagine that you are a doctor who just received a victim from a car crash; they will soon die if you do not take action. You quickly look at their ID and see that they are signed as an organ donor and you are reminded that there is a young patient who needs a kidney soon that has yet to have a donor. You are faced with two choices; one, you can save the older victim from the car crash and hope that donor comes for the young patient, or two, you can unethically remove the kidneys from the crash victim, therefore murdering him to save the young patient's life. If you go through with option two and are found out before the transplantation surgery, should you be forced to throw the kidneys away because they were immorally taken? This same concept can be applied to the Nazi medical research, where the victims of the camps are the car crash victim, and modern medicine and everyone who benefits from is the person in need of the transplant. The experiments performed by the Nazis were tragic. They caused the death of hundreds of thousands of innocent people. However, because of the unwilling sacrifice of those subjected to the experiments, medicine, and medical knowledge triumphed and advanced rapidly. If we did not use the research collected by the Nazis then those who were tested on would have suffered and died for nothing.

Annotated Bibliography

Primary Sources

1. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/film/liberation-of-auschwitz-victims-of-medical-experiments.
 - a. This is a 55 second video filmed after the liberation of Auschwitz by the Soviet Military. It shows Soviet doctors examining injuries on several victims and is primary because it was filmed during that time period. I used this source to help build my understanding of how those who were experimented on brought those who harmed them to justice in the Nuremberg Trials. This source also helped me understand how victims were treated after the liberation of the camps.
2. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/film/medical-case-us-prosecutor-details-illegal-experiments.
 - a. This is a 1:43 second video where Brigadier General Telford Taylor details one of the high altitude experiments where defendants Ruff and Romberg are on trial at the Nuremberg Trials. This source is primary because it is a video from the Nuremberg Trials. I learned the effects on the victims when they were in the compression chambers; I used the information from this video when describing the high altitude experiments.
3. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/medical-experiment-performed-at-the-dachau-concentration-camp.
 - a. This is a picture taken of a prisoner at the Dachau concentration camp during one of the high altitude experiments. This source is primary because it is a picture taken during the experiment and is of someone subjected to the experiment. I used this source as a picture in my project to give a visual reference in my paper. This source helped me understand what type of equipment was used in the experiments and what it looked like.
4. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/medical-experiment-at-dachau.
 - a. This is a picture of a dead prisoner at the Dachau concentration camp who is still attached to the harnesses used in the high altitude experiments. This is a primary source because it was taken as documentation during one of the high altitude experiments. I used this source as a picture in my project to give a visual reference in my paper. This source helped me in my project because it helped give me an idea of how small the compression chambers were.

5. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/child-survivors-of-auschwitz.
 - a. This is a picture taken from a video of child prisoners being liberated from the Auschwitz concentration camp; several survivors of Mengele's twin experiments can be seen, such as Eva and Miriam Kor. This is a primary source because it is a picture of children who were interned in the concentration camp during the liberation. I used this picture as a visual reference in my paper. From this source I learned more about what ages the children at Auschwitz were during the liberation of the camp.
6. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/photo/photograph-documenting-medical-experiments-on-a-polish-prisoner-in-the-ravensbrueck-concentration-camp?parent=en/3000.
 - a. This is a picture of a female prisoner named Bogumila Jasuik who is posing in a way that is meant to show her injuries to be used as evidence later on. This is a primary source because it was taken at the Ravensbruck concentration camp during the time of internment. I used this source in my paper as a picture to give the reader a visual. This source helped me understand how prisoners in the camps would do small things like this to document their pain in hopes that the Nazi doctors would someday be punished.
7. Aires, Nick Evans in Buenos. "Nazi Angel of Death Josef Mengele 'Created Twin Town in Brazil'." *The Telegraph*, Telegraph Media Group, 21 Jan. 2009, www.telegraph.co.uk/news/worldnews/southamerica/brazil/4307262/Nazi-angel-of-death-Josef-Mengele-created-twin-town-in-Brazil.html.
 - a. This source is an article that contains quotes from people in Candido Godoi who lived during the end of World War II and met the man that is thought to be Dr. Mengele. This is a primary source because the quotes are from people who lived during the time when they were visited by Mengele. I learned and used information from this source about how Mengele was actually successful in finding a way to grow the Aryan race fast.
8. Broder, Jonathan. "AUSCHWITZ SURVIVORS RECALL HORROR OF NAZI EXPERIMENTS." *Chicago Tribune*, Chicago Tribune, 4 Sept. 2018, www.chicagotribune.com/news/ct-xpm-1985-02-07-8501080137-story.html.
 - a. This source provides quotes from people who survived the camps and spoke to Dr. Mengele about various topics. This source is primary because it has quotes from people who were interned in the camps during World War II. I used this source in my project to help describe the twin experiments. From this source I learned about how Mengele's victims were treated based on how useful they were to him at the time.
9. "Chronicles of Dr. Charles Drew's Death." *Session 1: Settlement and Migration | NC Museum of History*, www.ncmuseumofhistory.org/chronicles-dr-charles-drews-death.
 - a. This source is an article that contains quotes from people at the time of Charles Drew's death. This source is primary because the quotes were from the time of

Charles Drew's death. I used the information I learned from this source to understand how the method of blood transfusion were created and how the Nazis affected this.

10. Claims Conference. "Personal Statements From Victims of Nazi Medical Experiments." *Claims Conference*, www.claimscon.org/about/history/closed-programs/medical-experiments/personal-statements-from-victims/.
 - a. This source is a collection of testimonies from victims of the Holocaust and the medical experiments done in multiple camps. This source is primary because these testimonies are from people who were in the camps that escaped or were liberated. I used this source to understand how the victims of the camps survived the experiments. From this I learned in detail about multiple experiments.

11. "Doctors from Hell." *Google Books*, [books.google.com/books?id=_VH-7oeT4IEC&pg=PA116&lpg=PA116&dq=Zofia+Maczka&source=bl&ots=7SHyWwz1iC&sig=ACfU3U2pviPCHUjPjKZ6nG31uTw0Qbrk5g&hl=en&sa=X&ved=2ahUKEwjYoPCEna_gAhVk04MKHcXRBrkQ6AEwCXoECAUQAQ#v=onepage&q=Zofia Maczka&f=false](https://books.google.com/books?id=_VH-7oeT4IEC&pg=PA116&lpg=PA116&dq=Zofia+Maczka&source=bl&ots=7SHyWwz1iC&sig=ACfU3U2pviPCHUjPjKZ6nG31uTw0Qbrk5g&hl=en&sa=X&ved=2ahUKEwjYoPCEna_gAhVk04MKHcXRBrkQ6AEwCXoECAUQAQ#v=onepage&q=Zofia%20Maczka&f=false).
 - a. This source is an online section of the book "Doctors From Hell" by Vivien Spitz. The quotes in this section are primary because they are from Dr. Zofia Maczka during the Nuremberg Trials. I used the information I learned from this source to add details to the areas on bone, muscle, and nerve transplantation experiments in my paper.

12. "The Evolution of Medical Ethics." *The Hippocratic Oath*, [owlspace-ccm.rice.edu/access/content/user/ecy1/Nazi Human Experimentation/Pages/Bone Grafting.html](http://owlspace-ccm.rice.edu/access/content/user/ecy1/Nazi_Human_Experimentation/Pages/Bone_Grafting.html).
 - a. This source is an article that provides information on the bone grafting and nerve transplantation experiments. It is primary because it gives explanations of the experiments written and said by doctors and victims of the experiments. From this source I learned about the specific procedures performed. I used this information in my paper to help explain this specific experiment.

13. Greenhouse, Steven. "Capping the Cost of Atrocity; Survivor of Nazi Experiments Says \$8,000 Isn't Enough." *The New York Times*, The New York Times, 19 Nov. 2003, www.nytimes.com/2003/11/19/nyregion/capping-the-cost-of-atrocity-survivor-of-nazi-experiments-says-8000-isn-t-enough.html.
 - a. This source is an article about how Holocaust and experiment victim Simon Rozenkier has filed a lawsuit against companies that provided equipment used on him to the Nazi doctors. This is a primary source because Mr. Rozenkier gives testimonies on his experiences in the camps and specifics on other experiments that he witnessed. From this source I learned about the long term impact of these experiments on people. I used this information to help explain why the experiments were wrong and how they still affect us.

14. *Holocausthandbooks.com*. N. p., 2019. Web. 16 Feb. 2019.

- a. This source is a book in PDF form that provided a lot of information for my paper. This source is primary because it is full of eyewitness accounts from doctors at the camps. From this source I learned about how the doctors felt about the experiments and how they did them. I used this information to explain which doctors did which experiments and which camp throughout my essay.
15. "I Survived The Holocaust Twin Experiments." *YouTube*, YouTube, 15 Sept. 2017, youtu.be/gdgPAetNY5U.
 - a. This source is a video of Holocaust and twin experiment survivor Eva Mozes Kor describing her time at Auschwitz with her sister Miriam Kor. This source is primary because Eva herself is describing the experiments done on her and her sister. From this source I learned what it was like to be a child and twin at Auschwitz and used this information when I was describing Mengele's twin experiments.
16. *Justice.gov*. N. p., 2019. Web. 16 Feb. 2019
 - a. This is a book in PDF form that describes the search, background, and diaries of Dr. Mengele. This is a primary source because it contains excerpts from Mengele's diary and letters from different people about Mengele. From this source I learned about where people thought Mengele went after the war. I used this source in my project to help explain how Mengele went to Brazil under a fake identity.
17. "Learn." *The Mengele Letters at the CANDLES Holocaust Museum*, candleholocaustmuseum.org/learn/mengele-letters.html.
 - a. This source includes two handwritten letters by Dr. Mengele to his wife and son that have been translated into English. This is a primary source because the letters were written by Mengele during World War II. From this source I learned and used information about how Mengele acted and spoke when he was not at Auschwitz.
18. Maltz, Judy, et al. "Horror of Nazi Medical Experiments Emerges in Holocaust Survivor's Account." *Haaretz.com*, Haaretz Com, 10 Apr. 2018, www.haaretz.com/jewish/horror-of-nazi-medical-experiments-emerges-in-survivor-s-account-1.5395473.
 - a. This source is a testimony from Holocaust and experiment survivor Heinz Reimer where he describes the hypothermia and Malaria experiments performed on him. This source is primary because it contains quotes in English from the testimony. I used the information I learned from this source when describing the Malaria and hypothermia experiments.
19. Marks, Andrew R. "Doctors from Hell: *The Horrific Account of Nazi Experiments on Humans*." *The Journal of Clinical Investigation*, American Society for Clinical Investigation, 4 Jan. 2006, www.jci.org/articles/view/27539.
 - a. This source is an analysis of the book "Doctors from Hell: The Horrific Account of Nazi Experiments on Humans" by Vivien Spitz. This website is

primary because it contains quotes from the eyewitness book from Vivien and several doctors at the Nuremberg Trials. I used the information that I learned from this source to help add details to my paper on the experiments.

20. "The Nazi Concentration Camps." *Prisoner Groups | The Nazi Concentration Camps*, www.camps.bbk.ac.uk/documents.html.
 - a. This source is a collection of 121 translated documents about the camps, experiments, war, and many other things. All of these sources are primary because they were all created during World War II. I learned about the different proceedings of the camps and how different people viewed the experiments. I used this information in multiple places in my paper, especially when detailing specific experiments.
21. Sedley, David, et al. "Video of Holocaust Survivor Forgiving Mengele Goes Viral." *The Times of Israel*, www.timesofisrael.com/video-of-holocaust-survivor-forgiving-mengele-goes-viral/.
 - a. This is an article analyzing the video of Eva Kor that shows pictures of her in and out of the camps. This source is primary because there is several pictures and quotes from and of Eva. I used this information when trying to understand the long term impact of the camps on the survivors, and I learned about how Eva's experiences have helped her move on.
22. Walker, Andy. "The Twins of Auschwitz." *BBC News*, BBC, 28 Jan. 2015, www.bbc.com/news/magazine-30933718.
 - a. This source is an article that contains several videos of Holocaust survivors giving their experiences or eye witness accounts. This is primary because the people giving the accounts were in the camps during World War II. I used this information throughout my paper when explaining experiments.

Secondary Sources

1. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/nazi-medical-experiments.
 - a. This source is an article from the United States Holocaust Memorial Museum that explains the types of Nazi experiments. This is a credible secondary source because it is from a site that is dedicated to the remembering of the Holocaust. I used this site as a beginning to my research and used the information in it to make a rough outline for my paper.
2. *PBS*, Public Broadcasting Service, www.pbs.org/wgbh/nova/holocaust/experiside.html.
 - a. This is an article that describes multiple experiments and includes pictures with captions for several of them. This is a credible secondary source because PBS is a well known organization and strives to be historically accurate. I used the

information I learned from this source to accurately write my paper and properly explain the experiments.

3. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/the-united-states-and-the-holocaust.
 - a. This source is an article on the United States Holocaust Memorial Museum that explains how World War II affected the United States and what the United States thought of it. This source is credible because it's from a site that is dedicated to the remembering of the Holocaust. I used information from this site to help build my understanding of how the Holocaust affected people in the United States.
4. *United States Holocaust Memorial Museum*, United States Holocaust Memorial Museum, encyclopedia.ushmm.org/content/en/article/concentration-camps-1933-39.
 - a. This source is an article on the United States Holocaust Memorial Museum that describes the history of the concentration camps and how those in them were treated. This is a credible secondary source because it is from a site that is dedicated to the remembering of the Holocaust. I used this information in the background information in my paper.
5. Bogod, David. "The Nazi Hypothermia Experiments: Forbidden Data?" *The Canadian Journal of Chemical Engineering*, Wiley-Blackwell, 18 Nov. 2004, onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2044.2004.04034.x.
 - a. This source is an article that discusses the ethics of using the data collected by the Nazis in modern medicine. This source is credible because it was written by the editor in chief at a popular medical website. I used the information I learned from this source to help prove my thesis by acknowledging other points of view that are different than mine.
6. "Denis Jordanet: The Physiologist Who Discovered the Role of Low Blood Oxygen at High Altitude." *ScienceDaily*, ScienceDaily, 10 Aug. 2013, www.sciencedaily.com/releases/2013/08/130810063315.htm.
 - a. This source is an article about how hypoxia was discovered and includes details on symptoms of hypoxia. This source is secondary and is credible because it is on a website that provides accurate and recent science news. I used the information I learned from this source to help explain how the Nazi doctors were studying altitudes by looking for signs of hypoxia.
7. "Did Josef Mengele Produce Any Useful Medical Research?" *Washington City Paper*, www.washingtoncitypaper.com/columns/straight-dope/article/13046655/did-josef-mengele-produce-any-useful-medical-research-data-gathered.
 - a. This is an article that is questioning and discussing the validity and the success of Dr. Mengele's experiments. This source is credible because it was written by a highly acclaimed author named Cecil Adams from the Washington City Paper. I used the information I learned from this source to help prove that Mengele's experiments were successful despite their cruelty.
8. "Medical Experiments of the Holocaust and Nazi Medicine." *The Holocaust History - A People's and Survivor History - Remember.org*, remember.org/educate/medexp.

- a. This source is an article that describes the specific experiments in great detail, especially the hypothermia experiments. This is a credible source because it is an organization that is dedicated to teaching people about the Holocaust. I used the information I learned from this source to write about the methods they tested for rewarming those in the hypothermia experiments.

9. "Nazi Medical Experimentation." *Suleyman*,
www.jewishvirtuallibrary.org/the-ethics-of-using-medical-data-from-nazi-experiments.
 - a. This source is an article that discusses the ethicality of using Nazi medical data in modern day medicine. This source is credible because it is from The Jewish Virtual Library that gives the history on the Holocaust. I used the information I learned from this source when I was describing the debate on using this research.

10. "Nazi Medical Experiments: Background & Overview." *Suleyman*,
www.jewishvirtuallibrary.org/background-and-overview-of-nazi-medical-experiments#c.
 - a. This source is an article that describes the different overall types of experiments performed. This secondary source is credible because it is from The Jewish Virtual Library that gives the history on the Holocaust. I used the information I learned from this source when I was dividing up the experiments into the three categories I used in my paper.

11. "Nazi Science." *Lapham's Quarterly*, www.laphamsquarterly.org/medicine/nazi-science.
 - a. This source gives information on multiple Nazi experiments, including why each experiment was done. This secondary source is credible because it is from an acclaimed medical magazine that talks about new advances in medicine and the causes of them. I used the information I learned from this source to describe why each experiment was performed and when they were performed.

12. "Nazi Science - The Dachau Hypothermia Experiments | NEJM." *New England Journal of Medicine*, www.nejm.org/doi/full/10.1056/NEJM199005173222006.
 - a. This source is an article that describes the Dachau hypothermia experiments and analyzes results from them. This source is credible because it was written under The New England Journal of Medicine and has been highly cited. I used the information I learned from this source to describe how we use the research from this experiment today.

13. Palmer, Brian, and Brian Palmer. "Do Doctors Use Nazi Data in Their Research?" *Slate Magazine*, Slate, 7 June 2010,
slate.com/news-and-politics/2010/06/do-doctors-use-nazi-data-in-their-research.html.
 - a. This source is an article that discusses if any useful data came out of the Nazi experiments. This source is credible because it was written by Brian Palmer who is an author of science and medicine for several newspapers. I used the information that I learned from this website when acnolonging views that believe it is wrong to use information collected by the Nazi's.

14. "Pseudo-Medical Experiments in Hitler's Concentration Camps." *Medical Review Auschwitz*,

www.mp.pl/auschwitz/translations/english/170062,pseudo-medical-experiments-in-hitlers-concentration-camps.

- a. This source is an article that describes the experiments that went on at each concentration camp. This source is credible because both authors Andrzej Jakubik and Zdzisław Jan Ryn are both professors with PhDs that have studied this topic. I used the information I learned from this source to prove which experiment was done at each camp.

15. Radford, Tim. "What Has Medicine Learned from the Nazis?" *The Guardian*, Guardian News and Media, 14 Oct. 2004, www.theguardian.com/news/2004/oct/14/thisweeksciencequestions.cancer.

- a. This source is an article that discusses what we have learned from the Nazi medical experiments and other parts of the ways the Nazis lived. This source is credible because it was written by Tim Radford who has been a journalist for the Guardian for 32 years. I used the information that I learned from this source to help prove my thesis statement.

16. Stockton, Richard. "Did Nazi Research Actually Contribute Anything To Medical Science?" *All That's Interesting*, All That's Interesting, 4 May 2018, allthatsinteresting.com/nazi-research/2.

- a. This source is an article that details the experiments and states what was discovered from each of them. This source is credible because it is written by a educational website for history and science. I used the information that I learned from this source to help prove that the Nazi experiments helped to advance medicine.

17. Stockton, Richard. "The Sickening Experiments Of Dr. Josef Mengele, The Nazi 'Angel Of Death.'" *All That's Interesting*, All That's Interesting, 19 Dec. 2018, allthatsinteresting.com/josef-mengele-nazi-experiments.

- a. This source is an article about the life of the famous Dr. Mengele and his cruel experiments. This source is credible because it is written by a educational website for history and science. I used the information that I learned from this source to understand and describe the life of Dr. Mengele before and after the camps.