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Research Proposal Assignment

My research question.

How does the absence of gravity affect the cardiovascular system and what does this mean for long-term space travel?

1. Working title for project.
Can Humans Thrive In Space?

2. A summary of project.

The human body relies on the cardiovascular system for many basic functions, such as delivery of the blood to the brain or lungs. When this task is impaired, it creates serious issues such as heart attacks and strokes. It is known that different levels of atmospheric pressure affects blood pressure. I plan to research how the human heart system is affected by low gravity and explore how this can create difficulties for prolonged space travel.

To help guide my research, I have created a series of questions :

How does the human heart work?
What are the limits and minimal conditions for the cardiovascular system to work?
How does gravity affect blood flow?
Is there any physical effect on the veins, arteries, or heart muscles when in space?
Do the heart muscles become bigger or smaller? Expand or contract more?
How does gravity affect the circulatory system while a human is on earth?
What does this data mean for long term space travel?
What are the current limitations in keeping astronauts healthy?
What can be done to remedy the effects of space travel?

3. A description of my purpose

I am fascinated by the idea of space travel, but I understand there are several reasons that keep humans from dancing on Mars. I was first introduced to the issues astronauts face in space while I was high schooler. I was part of the Astronaut Challenge team. This experience left me fascinated by how much our bodies are dependent on gravity and I want to learn in more detail what happens in to our bodies in low gravity. In particular I want to focus on the heart. The heart is incredibly vital to our basic functions. I am insatiably curious about how the heart and its whole system works. With this research essay, I hope to gain knowledge about the how the heart functions in space and gain a greater understanding of why our biology makes it difficult to journey through the galaxy.

4. A discussion of the key challenges

My biggest concern for this project is not finding enough different sources to support my topic. I know there is research out there about the how low gravity can deteriorate the human body, but I am not sure how many of those studies center around the heart. Also I fear in making my research paper too technical. Though I am confident with time and editing I can create a clear paper.