

Honors 177

**Finding the beat:**

**An exploration of the body's natural circadian rhythm**

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# ABSTRACT

As the American lifestyle becomes more and more hectic, many people fight against their bodies' natural clocks as they work more, sleep irregularly and eat at inopportune times.

This project will illuminate the healing benefits of adhering to a natural circadian rhythm. By observing participants living in a large glass room installed in a gallery, visitors will gain a new awareness of their bodies' natural programming. They will see volunteers living in the room for a week, on display to the world as they sleep, eat, rest, be active, and take medication in accordance with their circadian rhythms. The exterior sides of the room will display excerpts from participants' journals as well as readings of their vital signs. Visitors will be able to track participants' progress in real time.

# CONCEPT / TOPIC

This project will accomplish two things: immediate positive change in the lives of the participants, and education and awareness about circadian rhythms for visitors. It will showcase scientific knowledge about our bodies' natural rhythms: that they are reprogrammable; that they affect sleep, wakefulness, blood pressure, hormone levels, and more(1); that they promote healthy sleep and eating habits; that they can play an integral role in maximizing the effectiveness of medical treatment(2); that the standard American lifestyle interferes with them; and that we can easily take steps to follow them more faithfully(3).

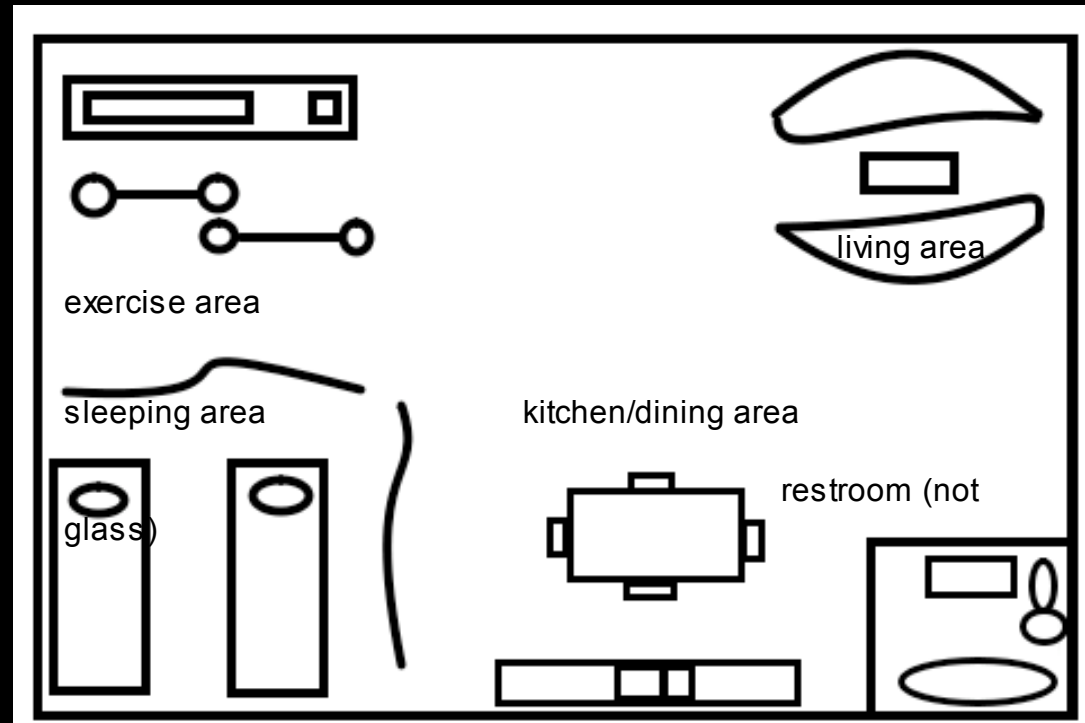
The exhibit will showcase scientific knowledge in an easily understandable way. It will make science accessible to non-scientists and bridge the gap between "the two cultures."

# CONTEXT & PRECEDENTS

Scientists have known about circadian rhythms for quite some time, but recent science is applying this knowledge to everyday life. Only in the last several decades are scientists and doctors prescribing and using medicine in harmony with natural rhythms(4). Recently, some professionals have suggested keeping a chronorecord, a chart monitoring mood, health, sleep, and more, in order to learn how to best time sleep, exercise, and even dentist appointments(3).

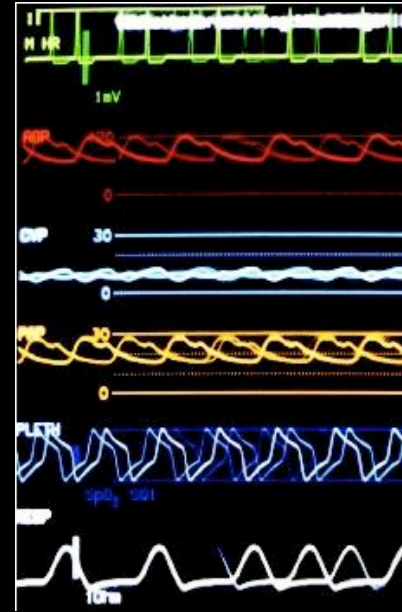
So far, art dealing with circadian rhythms is rather rare, but the idea of artists putting themselves on display in glass chambers is not. In recent projects, such as one where artists ate a genetically-modified feast, and another where an artists lived in harmony with lab animals, this has been an effective way to reach and relate with audiences.

# PROJECT PROPOSAL



The display room will be a single chamber encased by two-way mirrors. In order to simulate the natural lighting to which their circadian rhythms are adapted, the lighting in the chamber will fluctuate in intensity depending on the time of the day. Daytime inside the chamber will be light, night will be dark, and other times will be in between. However, it will always be darker in the room surrounding the chamber than in the chamber itself: that way, viewers can see in but participants cannot see out and therefore will not be influenced by external activity.

## Project Proposal (cont.)



Inside the chamber, four participants will merely go about their lives in accordance with their natural circadian rhythms. Without work, social obligations or the pressures of modern life, they will sleep when it's dark out and be active when there's light. Each will continue a pre-existing drug regimen, and they will take their medicines at precise times: bronchodilators (for asthma) at 7 p.m., high blood pressure medicines just before bed, and so on, in order to maximize the drugs' synchrony with their bodies.

They will wear heart rate monitors, blood pressure cuffs, thermometers and other devices to document the natural fluctuations of their vital signs. Readings will be constantly broadcast outside the chamber for visitors to see, and the participants will also journal about their health and wellbeing and then post the pages of their journal on the walls of the chamber. Visitors will therefore have both objective and subjective data about the benefits of adhering to a natural circadian rhythm.

## Project Proposal (cont.)



After viewing the participants in their chamber, gallery visitors would enter another room where they would find a device that allows them to better follow their own circadian rhythms. They would approach podiums, each with a small square device to wear as an armband, which would monitor the wearer's vital signs and allow the user to be more familiar with the inner workings of his or her body. After plugging each visitor's vital signs into an algorithm and collecting data about his or her habits, the device would tell the user when to take medication, when to sleep, and when to eat or drink water in order to modify blood sugar levels. The visitor would then receive a print-out of his or her personalized recommendations.

# Conclusion

On the surface, circadian rhythms seem very simple. However, they have the potential to alter many aspects of our wellbeing, and raising awareness about their profound impact is a large step toward understanding our bodies and taking care of ourselves. Through watching others removing themselves from the pressures of everyday life and living according to their built-in clocks, visitors will be able to confront their own notions of time, and ideally, change their lives for the better.



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