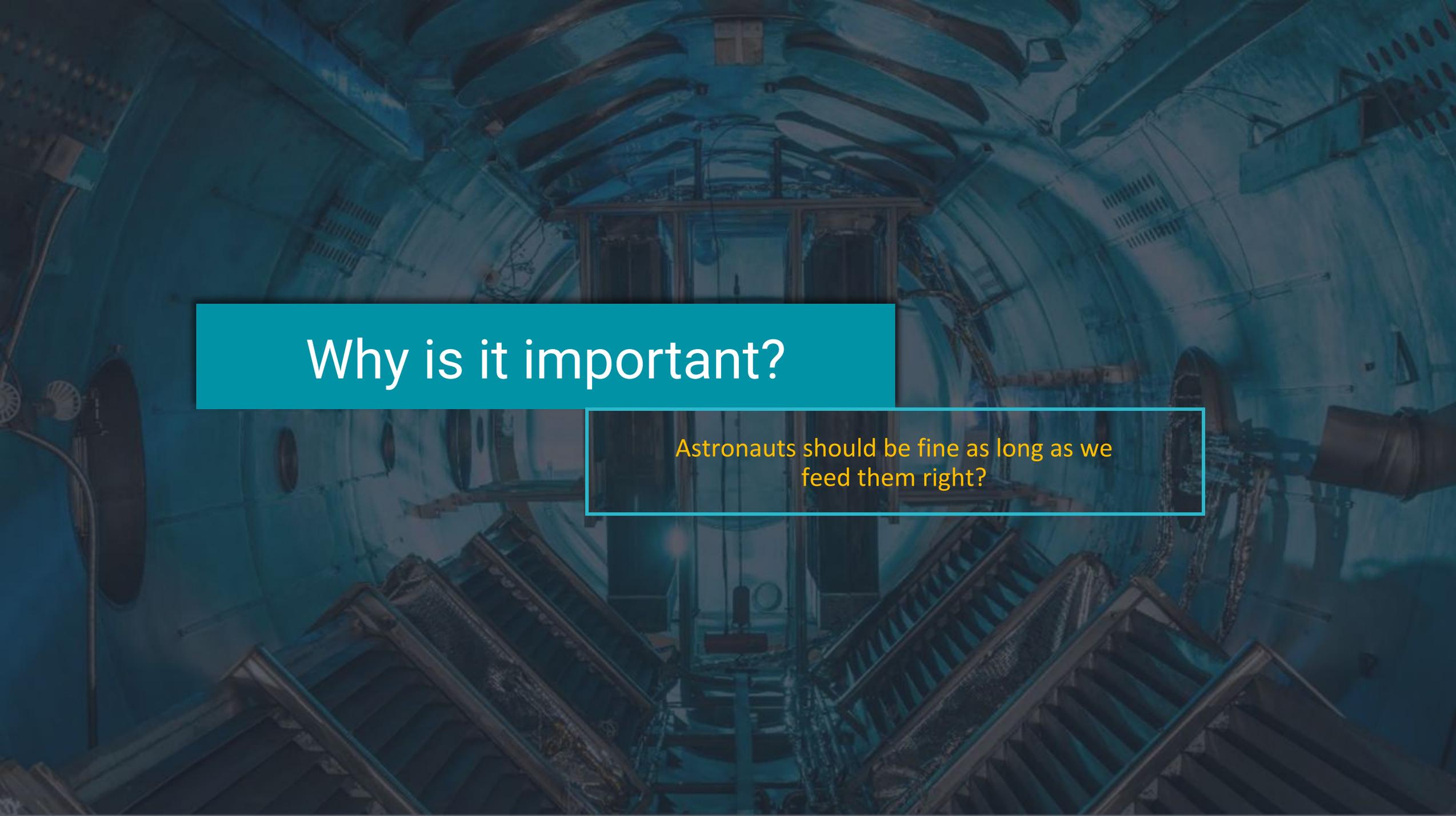


MENTAL HEALTH ON MARS

By: Ibukun Ope





Why is it important?

Astronauts should be fine as long as we feed them right?



HUMANS ARE NOT ROBOTS



Traveling to Mars requires humans to live in conditions far different from the luxuries of earth.

Differences include:

- being far away from family and friends
- living in a confined aircraft for several months with the same 4-5 people
- different atmosphere: gravity, radiation, distance from the Sun
- limited resources/mobility

Concern rises for :

- Depression
- Anxiety
- Conflict
- Cognitive Functioning



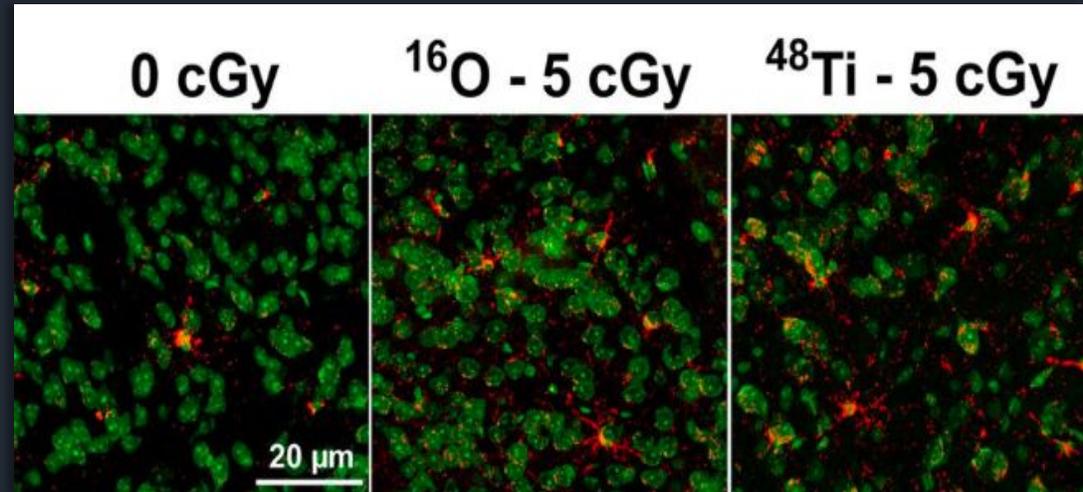
Research

So what does space do to the mind?

Rodents & Radiation

Rodents that were exposed to charged particle radiation experienced:

- spatial impairment
- episode and recognition memory deficits
- deficits in executive functioning
- long-term increase in neuroinflammation
- reduction in dendritic spine complexity/density
- reduced rates of fear extinction
- elevated anxiety



A painting of Earth from the Moon's surface. The Earth is a large, blue and white sphere in the upper right, showing swirling cloud patterns and a small orange-brown spot. The foreground is a grey, cratered lunar landscape. Two teal text boxes are overlaid on the image. The background is a dark, starry space.

The Overview Effect

Seeing the earth from the outside.

“Intellectually, I knew what to expect. I have probably looked at as many pictures from space as anybody ... so I knew exactly what I was going to see ... But there is no way you can be prepared for the emotional impact ... It brought tears to my eyes.” ~ Don L. Lind, astronaut and STS-51-B mission specialist



“You see how diminutive your life and concerns are compared to other things in the universe ... The result is that you enjoy the life that is before you ... It allows you to have inner peace.” ~ Edward Gibson, astronaut & Skylab 4 pilot

“The actual experience exceeds all expectations and is something that’s hard to put to words ... It sort of reduces things to a size that you think everything is manageable ... All these things that may seem big and impossible ... We can do this. Peace on Earth — No problem. It gives people that type of energy ... that type of power, and I have experienced that.” ~ Anousheh Ansari, space tourist



The Earth-Out-of-View Theory



Developed by Nick Kanas, a professor of Psychiatry at the University California who studied the Overview Effect.

This theory states that having Earth out of sight to astronauts can create an opposite effect of the overview effect, inducing stress and anxiety as they get further away from home and deeper into the unfamiliar.

ON EARTH SIMULATIONS

HI-seas

- 4 moths to a year
- Mars simulation base in Hawaii
- Conditions similar to living conditions on Mars: extreme isolation, 30-second showers, delayed communication, excursions w/ spacesuits
- **Outcome: with all 6 “missions” so far, every crew ends up fighting.**
- Takeaway: focus on picking good leader/crew dynamics beforehand
- Podcast series: the Habitat

Mars500

- 520 days of simulated Mars journey
- Spent 700 more hours in bed on the return journey than the outwards journey
- Only 2 members came out mentally healthy
- **4 out of 6 had sleep and psychological issues**
 - 25-hour circadian rhythm
 - chronic sleep deprivation caused majority of mistakes
 - mild depression
 - extensive naps during the day



So What Qualities Should Be Considered For Mars Astronauts?

Paper published in the APA says:

- Good Group Skills
- Good Emotional Regulation
- Motivation
- Leadership
- Easygoing
- Humor



*Ultimately it's hard to tell because there are way too many factors to consider and each are subjective to each human being. *

(Landon, L. B., Slack, K. J., & Barrett, J. D, 2018)



The Future of Mental Health in Space

- Virtual Reality
 - Regular lighting to simulate the sun and sleep-wake cycles
 - Increased shielding from radiation
-

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