

NEAR-FUTURE HUMAN SPACE MIGRATION BODY DESIGN

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In future interstellar colonization, there are two major problems that humanity urgently needs to solve: one is the energy problem, and the other is the traditional biological body. The energy problem is skipped over here, but the human body must be redesigned. The human biological body exists to adapt to Earth's environment: gravity, bipedalism, high bursts of energy, etc. In order to adapt to the space environment, the human body must be redesigned to cope with microgravity, radiation, high-speed collision dangers, and a no-atmosphere environment for communication, among other challenges.

PART 1 THE HUMAN BODY

The consciousness of a human is essentially the brain. The idea is to remove the human brain, leaving only the brain, and place it in a brain container, then install other equipment.

Design of the Brain Container:

1. Sealed
2. Strength must exceed that of the skull to protect the brain
3. Provide a perfect internal environment for the brain
4. Provide various rich interfaces for the brain (data interface, oxygen interface, blood supply interface, etc.)

Once the basic survival problems of the brain are solved, the next step is interaction and other issues. The following are some considerations for reference:

1. **Microgravity:** Prosthetic limbs will abandon traditional bipedal legs and instead be optimized for rapid movement in three-dimensional space, suitable for microgravity and zero-gravity environments. Since there is no thrust mechanism in space like the ocean, the prosthetics must include gripping and propulsion devices. On Earth, humans don't need to worry about moving without clothes because gravity is constantly pulling them. Therefore, propulsion systems in a zero-gravity environment must be considered.

2. **Radiation:** The brain container and all installed prosthetics must meet the safety radiation standards, addressing the potential residual dangers from radiation exposure to prosthetics through material science and manufacturing.
3. **High-Speed Collision Risks:** All prosthetics and equipment must pass space equipment strength tests to prevent damage from high-speed asteroid debris or space junk collisions.
4. **No-Gas Environment:** Completely abandon Earth-based voice communication methods, giving up all forms of language transmitted through gases, and switch to brainwave communication, visual communication, network communication, etc.
5. **Breathing**
The breathing issue must be addressed. The brain container provides an oxygen interface for the brain, and an oxygen supply device is inserted into the body to provide timed oxygen.
6. **Energy Transmission:** TBD

Additional Heart Engine (Heart) Design Requirements: The concept of an ultra-strong heart has been proposed in many forms and appears in many science fiction works, such as *Iron Man*. Whether the biological human heart can support the new space body is unclear. Additionally, the heart will age and stop beating as the telomeres are lost, so there must be research into developing a super engine to replace the heart.

PART 2: POPULATION SOURCE/REPRODUCTION METHODS

To Be Determined

PART 3: CITIES AND SPACE STATIONS

To Be Determined