

Citizen Group Card #4

Vocabulary

The Medical Community's Opinions on Proposed Space Colony

zero gravity: (n.) Condition in which the effects of gravity are not felt

bone density: (n.) The amount of minerals per square inch in a bone. Low bone density makes bones more likely to fracture or break.

virus: (n.) a very small germ that can cause diseases

bacteria: (n.) a tiny, single celled living organism that can live in a human and cause disease.

radiation: (n.) waves of energy produced by radioactive substances

The medical community has been involved in the US Space Program since the 1960s. Doctors are key to preparing a space crew for life in space. The medical community is quick to point out that there have never been any astronauts that have long-term medical problems as a result of having traveled in space. But, that may change when humans spend long periods of time at a colony out in space.

Humans who live and work in the *zero gravity* of space suffer from a loss of balance, decreased *bone density* and loss of muscle mass. The medical community has also discovered space travel damages white blood cells that are key to fighting infection. *Viruses* and *bacteria* that are already in the human body before leaving earth can become major illnesses that spread quickly in space and wounds will heal much more slowly causing major infections.

Another problem in space is that without the Earth's atmosphere to protect us, space travelers are exposed to huge amounts of the sun's *radiation*. Too much exposure to radiation can be deadly.

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counteract: (v.) to act against, to neutralize the action or effect of something

Long-term space travel and living in a space colony will expose humans to large amounts of radiation. Currently, the medical community has no way to prevent this exposure to radiation other than limiting the amount of time an astronaut is in space.

The medical community points out that the research they have done in space has helped astronauts remain healthy during long-term space travel. Doctors have done studies on past space travelers and have learned that taking bone density pills, daily exercise and an appropriate diet can help *counteract* the loss of muscle mass and bone density. However, there is no totally effective method to prevent the negative effects of zero gravity. Astronauts are able to take medications with them when they travel, but these types of medications are not effective against viruses.

People in the medical community see the many benefits that have come from the space program. One of the technologies developed by the space program is a machine used to look inside our bodies to detect

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robotic devices: (n.) a machine that resembles a human and does mechanical, routine tasks

purification: (v.) the act of making something pure or clean

cancer. A second discovery is that laser technology can be used in surgery. *Robotic devices* that were developed for the space shuttle are now used to perform surgeries here on earth. *Water purification* systems designed for the International Space Station are now used to provide clean drinking water to millions of people. These are just a few examples of how technology developed for the space program has helped make us healthier here on earth. The medical community is sure new technology will be created that will help to meet the needs of both those who travel to the colony and those of us here on earth.