

Effects of Weightlessness Could Impede Moon Travel

By JOSEPH L. MYLER
United Press International
Washington—(UPI)—Man may not go to the moon and planets after all.

A fact sometimes forgotten in public preoccupation with bigger and better rockets and spacecraft is that no one yet knows whether men can endure prolonged weightlessness.

Off hand, it might seem strange if he could. All life on earth has evolved in the past two billion years or so under the continuous influence of gravity.

Is it reasonable to expect the digestive, circulatory, muscular, skeletal, emotional and mental equipment of a creature so evolved to operate as usual without the familiar gravitational tug?

Some biologists and psychologists doubt it. It has been suggested, for example, that kidney stones may become an occupational malady of space travelers.

Under weightlessness, presumably, a skeleton created to resist gravity won't need as much stiffening calcium as before. And excess calcium can wind up in the human system as kidney stones, a cause of pain as excruciating, perhaps, as gout or severe bursters.

This is but one of the possible effects of weightlessness on astronauts who may spend a long time in that state. As someone once said, man has always been a "one-G animal." One G is the force exerted by the earth's gravitational pull. It is what gives you weight.

Weight Multiplied

Their accelerating rockets subjected astronauts John H. Glenn Jr. and Malcolm Scott Carpenter to forces about 7½ times gravity. That means their weight was multiplied 7½ times.

Then as powered flight ended and they went into orbit—falling around the earth at constant speed—they abruptly plunged into the eerie, skin-prickling space dimension of Zero-G, or weightlessness.

It was a novel sensation, one of inexpressible release, and for the 4½ hours they experienced it, Glenn and Carpenter enjoyed the feeling of weightlessness.

But Soviet cosmonaut Gherman S. Titov, who was weightless for a day, suffered from nausea after about six hours of Zero-G.

It will take 2½ days to go to the moon and as long to return. A roundtrip to Mars may take a year. No one knows whether human beings, astronauts or cosmonauts, will be able to stand weightlessness that long.

But by the time man's machines are capable of taking him to the moon, many of the mysteries of weightlessness should be solved. U.S. plans call for orbital bouts with zero-G lasting two weeks or longer before an attempt is made to plant men on the moon.

It may be that man, who has adjusted from life as a tropical animal to life in the Arctic and Antarctic, will be able to adjust to weightlessness, too.

Questions Asked

But this is by no means certain. Here are some of the questions scientists are asking:

Can the heart function properly without the help of gravity?

Is gravity vital to the movement of food through the digestive apparatus?

Would weightlessness speed up the multiplication of body cells or affect their growth and function?

Would long periods of zero-G be like long confinement in bed, tending to cause muscle atrophy and weakness?

Is it likely, as has been suggested, that the psychological effects of weightlessness may prove to be intolerable?

Speculation about the possibilities

bad effects of weightlessness has stimulated speculation about possible ways of relieving them.

Physical exercise in the limited quarters of the spacecraft, intermittent application of tourniquets to give the circulatory system something to work against, and drugs to combat nausea and disorientation have been suggested.

Dr. Terence A. Rogers, Stanford university physiologist, has given considerable thought to the psycho-somatic consequences of weightlessness.

"If they prove to be intolerable," he said in a "Scientific American" article, the vehicle could be accelerated at a fraction of a G to about the halfway point and then

decelerated for the remainder of the voyage.

"Alternatively, slow rotation of the vehicle would apply a small centrifugal effect. Either of these maneuvers

would give rise to a slight but comforting sensation of weight for the crew! Would any of these suggestions really work? At the moment, nobody knows.

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Missionary Program Begun By Countries

Nashville, Tenn. — (UPI) — A missionary - in - reverse program will be conducted by the Methodist church in the fall when leading Christians from other countries will participate in a "mission to America."

The leaders will be available for missions lasting six to eight days in churches that invite them. The missionaries will come from Africa, Asia, Latin America and Europe between Sept. 7 and Dec. 18.

Mother Shoots Hole In One In Missouri

St. Louis — (UPI) — Mrs. James Clark, mother of eight, scored a hole in one three weeks after taking up golf.

She made her ace on the 133-yard No. 8 hole at the West Par course here. The ball dropped on the green, rolled about six inches and fell in.

"But please don't tell what I shot on the other holes," she told her golfing companions.

Mrs. Clark's children range from two years to 14.



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