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Inventions to Test Gravity on Moon Now Aid Patients

BY GEORGE GETZE
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One of the most important side benefits of the space program has been the medical application of devices to simulate weightlessness, a Long Beach physician says.

The training devices that were invented to give the effect of moon gravity have been especially valuable in rehabilitation of injured and crippled patients, Dr. James Gaume says.

He said moon gravity is only a sixth of earth's, and machines that permit patients to walk under this reduced force and also permit the force to be gradually increased have a great future in physical therapy.

Gaume is manager of aviation medicine and safety research at the Long Beach plant of McDonnell Douglas Corp.

Only the First Step

The medical "spinoffs" so far have been impressive, he said, but they are only the beginning of developments in medicine that can be credited to the aerospace industry.

Devices that simulate weightlessness or the lower "out-gravity" of the moon are valuable for the rehabilitation of paralyzed or partly paralyzed victims of stroke, accident and heart conditions, Gaume said.

"Such devices take the load off the heart, the respiratory system, the lower limbs, and relieve the strain on all of the dynamic 'subsystems' of the body," Gaume said in an interview.

Among the devices being used in rehabilitation are the "inclined suspension simulator" and the "negator spring system."

Angle Changes Weight

The simulator consists of a walkway, tilted off the horizontal, on which patients can exercise while suspended by belts and pulleys. The steeper the angle of the walkway the more of a patient's weight is supported by the belts. The weight can be increased by gradually lessening the angle of the tilted walkway.

The negator spring holds patients in a horizontal position suspended from cables held by constant tension springs. The tension of the springs is relaxed to allow a patient gradually to assume more of his own weight, Gaume said.

In both ways patients who have been laid up for considerable time can be restored to normal activity without sudden strain on the heart and other organs, he said.