

18th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)
Contribution of Moon Village to Solving Global Societal Issues (2)

Author: Prof. Yoshinobu Ohira
Doshisha University, Japan, oyoshinobu@gmail.com

Prof. Takuya Goto
Doshisha University, Japan, tyatgoto@gmail.com

Dr. Alan Hargens
University of California, United States, ahargens@ucsd.edu

INHIBITION OF REACTIVE OXYGEN SPECIES AND COSMIC RADIATION AND STIMULATION
OF LEG MUSCLE ACTIVITY ARE ESSENTIAL IN MOON VILLAGE

Abstract

Detrimental effects of generation of reactive oxygen species (ROS), caused by reduced physical activity, and exposure to cosmic radiation on astronauts are serious medical concerns in Moon Village project, planned to perform in 1/6- and/or μ -G environment. Thus, here we propose the utilization of manganese superoxide dismutase (MnSOD) to inhibit the effects of ROS and cosmic radiation and of lower-body-negative-pressure (LBNP) device (treadmill) to increase the anti-gravitational activity of leg muscles for maintenance of physical health and fitness levels in astronauts. We would like to discuss about these possibilities using the results obtained from animal and human studies. (Supported by Doshisha DREAM Project)