

# Mars Holiday, a Pricey Bonecruncher

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A space traveller's dream of one day holidaying on [Mars](#) might sound appealing, but it would be a one-way-trip.

Not only would it take years to reach the Red Planet but our bones, muscles and joints would crumble under gravity on return to Earth.

UQ researchers have shown the harsh realities of space travel and its toll on the human body using results from a European Space Agency bedrest study.

A group of 19 “terrestrial astronauts” were kept isolated in hospital beds in Berlin for eight weeks to mimic a weightless environment.

They were not able to get up to brush their teeth, bathe or go to the toilet.

Several international researchers took part in the study with UQ physiotherapists Associate Professor Carolyn Richardson, Dr Julie Hides

and senior engineering lecturer Dr Stephen Wilson responsible for analysing muscle dysfunction around the spine and pelvis.

Using magnetic resonance images of muscle, the UQ researchers revealed that most of the group's stability muscles, used for protecting bones and joints, had deteriorated.

Most of the volunteers put on weight, some up to 7kg and even though they were gradually lifted out of bed, many of them were lightheaded and unbalanced.

Only volunteers that were given whole body vibrations and resistive exercise in bed kept their bone density.

Associate Professor Richardson said the bedrest results were significant because they proved that the same pattern of muscle dysfunction in back pain, developed when people unloaded their antigravity muscles by lying down.

Dr Hides said unloading of the antigravity muscles not overexertion was more likely the common cause of back pain.

People leading sedentary lifestyles, working in front of computers with bad postures and little movement was much to blame.

“If you're sitting at a computer for 10 hours a day, those muscles that protect those joints are turned off,” Dr Hides said.

UQ's physiotherapy team is continuing to develop an exercise program that astronauts could use in space to improve their stabilising muscles and maintain bone density so they don't suffer when their bodies readjust to gravity.

These exercise programs would also be beneficial to prevent low back pain on Earth.

Dr. Hides and Associate Professor Richardson have also had one of their back pain questionnaires go into space with a Dutch astronaut, who has recently returned from the International Space Station.

With a single trip to the station costing about \$20 million, Dr Richardson said health might not be the only problem for potential space travellers.

Source: University of Queensland

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