

UCI radiology researcher to aid NASA bone density study

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A UC Irvine researcher is part of a NASA effort to understand more about bone density loss during astronauts' lengthy stays aboard the International Space Station.

Joyce Keyak, professor in residence of radiological sciences, will employ a technique she created to analyze how microgravity-influenced changes to the [hip bone](#) might increase astronauts' fracture risk during spaceflight, upon returning to Earth and with subsequent aging.

Using information derived from Keyak's method – which she developed to evaluate [hip fracture](#) risk in the elderly – the research group will produce a database of hip strengths from population studies with subjects the same ages as NASA's astronaut corps and older.

"Astronauts are relatively young, and the database will cover this age range and up, including the elderly and both men and women," Keyak said. "This data will be combined with data from a study in Iceland that measured bone strengths of subjects who subsequently had hip fractures and others who did not have hip fractures."

Findings from this NASA study will inform new bone medical standards recommendations and clinical practice guidelines for reducing occupational health risks in astronauts.

Keyak has participated in previous NASA efforts to develop therapeutic guidelines addressing the risk of early-onset, age-related osteoporosis in

astronauts on long-duration [space missions](#). In 2010, she gave a lecture at the Johnson Space Center in Houston on the topic, and she participated in a 2009 study of 13 astronauts who spent four to six months on the [International Space Station](#) – which revealed wide differences in the loss of bone strength.

Provided by University of California, Irvine

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