

Special Suitsuits tested to help astronauts in space



Suitsuit model

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Being an astronaut in space is great fun, but there can be some unwanted side-effects too. Floating around in weightless conditions all day and night is not good for our bodies. On Earth our spines are naturally squashed down a little by gravity, but in orbit this does not happen, meaning that astronauts get a bit taller! This leads to back pain, makes it difficult to fit into spacesuits, and can end in health issues after returning to Earth.



Suitsuit Kings College

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To help solve this problem researchers at a university in the UK called King's College London have been experimenting with some clever ideas. First, they thought about how to simulate the effect of weightlessness down here on the surface of Earth.

They were inspired by the Dead Sea in Israel, which has so much salt in the water that it is easy for people to float on the surface. The researchers filled a container with water – called a waterbed – and added magnesium salts. Volunteers then tried lying on their backs and floating on the waterbed for a long time. They got a little taller, just as if they had been in space!

Once the researchers could reproduce the problem, they teamed up with ESA scientists to work out how to solve it. Together, they developed a special piece of clothing called a Suitsuit. Made of tight-fitting spandex, Suitsuits gently squeeze the body of anyone wearing them, from the shoulders to the feet, giving an effect like regular gravity on the surface of Earth.



Waterbed simulates weightlessness

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The first version of the Suitsuit looked promising, but was very uncomfortable and could only be worn for a few hours. The scientists made lots of improvements, and the latest Suitsuit is so comfortable that it can even be worn while sleeping! The volunteer students then tried lying in the salty waterbed while wearing Suitsuits. The early results are very promising, so it seems that the Suitsuits really will help astronauts in space!

In fact, ESA astronauts Andreas Mogensen and Thomas Pesquet have even tested Suitsuits during their missions to the International Space Station! What do you think? Would you wear a Suitsuit in space to help keep you healthy?

Cool fact: You can test the science of the waterbed for yourself at home! Fill a container with some water and put different objects in to see if they float or sink. Now mix salt into the water and try again!