

Astronauts gear up for space with tough Russian training

July 27 2017



Astronaut Randy Bresnik (R), astronaut Paolo Nespoli (L) and Russian cosmonaut commander Sergei Ryazansky (C) are due to blast off into space on Friday

Wearing helmets weighing 100 kilos, spinning in a centrifuge and

exercising while weightless: Russian cosmonauts and astronauts from abroad have to undergo a gruelling training process before blasting off into space.

Helped by an instructor at the famed Star City outside Moscow, cosmonaut Sergei Ryazansky slowly puts on his helmet as he hangs from the ceiling suspended by a thick metal cord and practises opening a lock while wearing a thick spacesuit.

The 42-year-old cosmonaut is no novice. He has already spent five months aboard the International Space Station (ISS) in 2013 and 2014 and will return for another mission on July 28, teamed up with US astronaut Randy Bresnik and Italian Paolo Nespoli.

"In weightlessness, the weight of the helmet isn't felt. But the cosmonauts feel great pressure which makes them swell up and become very stiff. They have to make an enormous effort to walk, bend their arms or move their legs," said the instructor Dmitry Zubov.

Space walks are especially tough because they are often carried out weeks after astronauts arrive at the orbiting space laboratory when their muscles are already growing weaker due to lack of gravity.

"I adore space walks. That's the most exciting part of the flight," said Ryazansky, who completed three space walks on his first space trip. Two space walks are planned for his next stint on the ISS.



The astronauts' space suits are tested before the launch

'Master emotions'

"The most important thing for a cosmonaut is knowing how to master your emotions," said the deputy director of the cosmonaut training centre, Yury Malenchenko, who himself has made six space voyages, the last landing in 2016.

"When you train for a long time on Earth to go out into space, you feel like you don't have emotions any more.

"But when the airlock opens and you look down before taking the first step into the void, you feel like you're going to plunge down," said Malenchenko, who has done stints both on Russia's ditched Mir station and the ISS, flying out on a US shuttle and a Russian Soyuz craft.

Two of the toughest exercises are the zero gravity simulation on nausea-inducing flights in Soviet-era planes and hurtling around in a giant centrifuge to prepare for the rigours of take-off from the Earth's surface.

While inside the centrifuge, the future space visitors experience forces of up to 8G and their body "weighs" eight times more than usual.



The astronauts are put through tough tests before takeoff

"At first you feel like you're in an armchair, as if you were driving a powerful car at high speed," said cosmonaut Alexander Lazutkin who spent six months on the Mir station.

"Then you go through some very unpleasant sensations. You feel like you can't breath, it feels as if your stomach is glued to your back. Your

tears flow because your eyes are pushed back in the cavities by the effect of the overload."

"You start breathing very quickly. You feel your heart beating very quickly, And you realise that if you relax, you risk losing consciousness immediately," said Lazutkin.

'Romantic attraction'

Cosmonauts no longer enjoy the glory in Russia they had in the Soviet era, but the profession is still prestigious and dreamt of by children. Yuri Gagarin, the first man in space, and pioneers such as constructor Sergei Korolyov are still looked up to as heroes.

"Their example made a big impression on us and inspired us," said Malenchenko.



The Russian Soyuz MS-05 spacecraft is due to take off from the Baikonur

cosmodrome in Kazakhstan on July 28, 2017

"Today we don't get free apartments and cars. But there is still that romantic attraction" to the job, said Ryazansky.

"And in the end, the hardest thing is to wait to go into space... I waited 10 years," Ryazansky said.

Twenty-seven cosmonauts are currently training at Star City. Apart from physical exercises, they also study medicine, astronomy, IT, diving, parachute jumping and even foreign languages.

In March, Russia's space agency Roscosmos announced a new public recruitment drive. Space officials will look at hundreds of applications before selecting a maximum of eight people.

© 2017 AFP

Citation: Astronauts gear up for space with tough Russian training (2017, July 27) retrieved 11 May 2024 from <https://phys.org/news/2017-07-astronauts-gear-space-tough-russian.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.