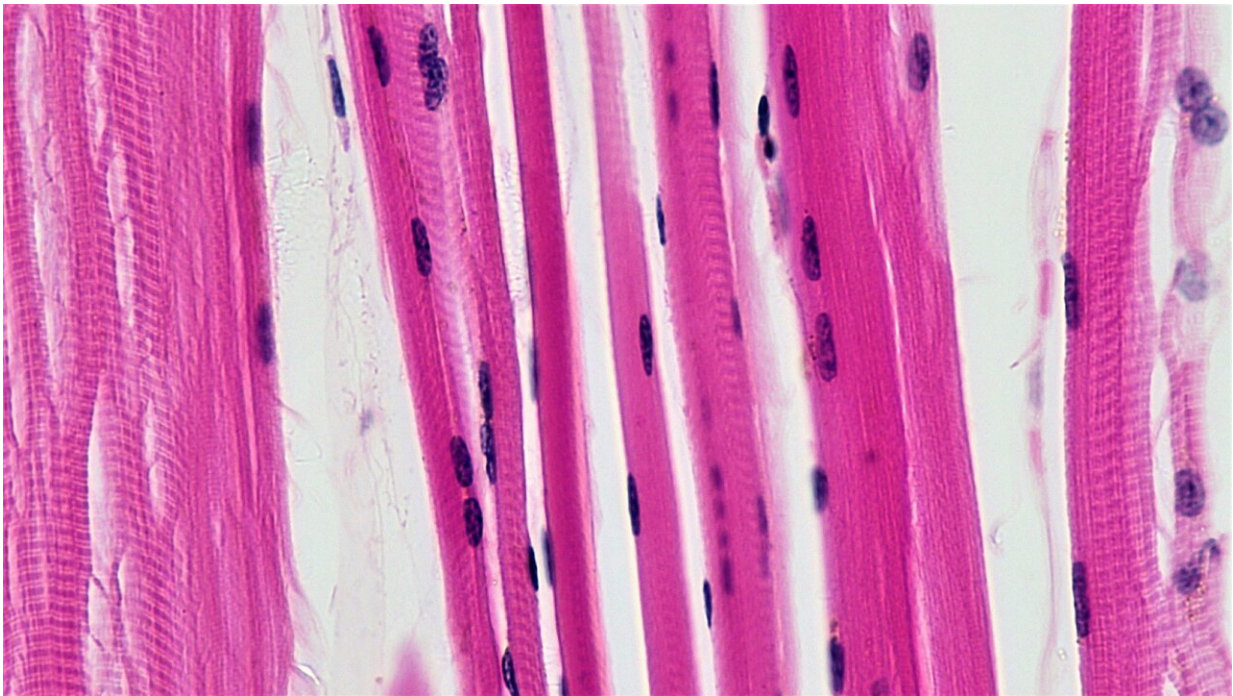


## Video: Muscle stimulation to enhance astronaut health

August 31 2023

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Skeletal muscle fibers. Credit: Berkshire Community College Bioscience Image Library / Public domain

Space exploration presents unique health challenges for astronauts due to lack of gravity, isolation, and radiation exposure. ESA's SciSpacE activities aim to comprehend these effects and their implications for human well-being during extended missions.

ESA collaborates with researchers to conduct experiments in microgravity and analog environments, shedding light on the consequences of space stressors. One critical concern is muscle and bone atrophy. Despite daily exercise routines, astronauts face deterioration. ESA is investigating [electrical stimulation](#) as a potential countermeasure, with tests planned on board the International Space Station.

The Muscle Stimulation experiment is a centerpiece of this research. By applying controlled [electric currents](#) to leg muscles, the study aims to enhance muscle mass, strength, and recovery. Complementary assessments, including MRI scans, microcirculation analysis, and blood samples, will provide a comprehensive understanding of the efficacy.

Addressing these challenges could yield benefits on Earth too. The insights gained could translate to better health care for diverse populations, from the elderly to clinical patients and athletes.

ESA's dedication to advancing [space exploration](#) while safeguarding astronauts' physical health underscores its commitment to a sustainable and thriving space program. Through research and innovative solutions, humanity edges closer to conquering the challenges of extended spaceflight and improving life on our home planet.

Provided by European Space Agency

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