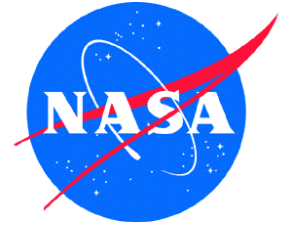


NASA INFORMATION

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Cardiovascular Adaptation

Spaceflight can be a major rush for astronauts. But did you know that the journey could sometimes be very taxing on an astronaut's heart? In space, gravity no longer pulls fluids in the body toward the legs and feet.

Instead, fluids, such as blood, are distributed more equally throughout the body. Extra fluids in the head make an astronaut's face look puffy. Extra fluids around the heart trick the body into reducing the total amount of blood in circulation.

The heart also becomes smaller and weaker because it does not have to work as hard. The heart adapts to spaceflight with no evidence of functional impairment. However there are some risks associated with space travel.

They include the occurrence of serious cardiac dysrhythmia; impaired cardiovascular response to orthostatic stress; impaired cardiovascular responses to exercise stress; manifestation of previously asymptomatic cardiovascular disease; and diminished cardiovascular function.

Today's research and technology focuses on understanding cardiovascular alterations. There are some countermeasures to help minimize risks. They may include pharmacological agents, exercise regimes, artificial gravity, nutritional supplements, mechanical aids and electro-myostimulation.