



Canadians in Space / Les Canadiens dans l'espace space.yesican-science.ca

Why is Exercise so Important?

Bird Legged, Puffy Faced Astronaut

On Earth, gravity pulls everything down. Thus, the lower torso and legs carry the weight of the body. In space, because of microgravity, astronauts float and the legs are basically not used.

In space, the lower back and leg muscles are affected the same way as muscles that have been in a cast for a while. Muscles become flabby and lose tone and mass. This is called muscular atrophy, and makes the limbs affected look skinnier. The bones also become weaker because of the loss of minerals like calcium, potassium and sodium.



Space also affects the cardiovascular system of the human body. On Earth, because of gravity, blood naturally pools in the legs, therefore, the heart has to pump against gravity to supply enough blood to the brain. In space, the heart acts the same as it would on Earth. However, because there is no gravity, the blood rushes to the torso and head. In this case, what the astronaut experiences is the "puffy face syndrome". The veins in the neck and face stand out more, and the eyes become red and swollen.



Daily Exercise

Astronauts try to lessen the puffy face and the bird leg syndromes by exercising as often as possible. Astronauts must exercise at least two hours every day to keep their muscles healthy.

What kind of exercise can astronauts do in space? Astronauts use a stationary bicycle and a treadmill to exercise both the lower and the upper body muscles. They use a series of straps and restraints to remain secure against the exercise equipment.



Adapted from the Canadian Space Agency / Texte modifié tiré de l'Agence spatiale canadienne
www.space.gc.ca