

Measure Up!

Astronauts on the International Space Station have puffy faces! Why? It's all about the pull of gravity – or lack of it!

Our bodies are made of 60% water, most of which is in our cells and circulatory system. We're well adapted to dealing with Earth's gravity - our hearts pump our blood and keep it from pooling in our feet. But in microgravity on the Space Station everything floats – even the fluids in our bodies! As soon as they get into space, fluids in the astronauts' bodies shift, causing puffy faces and shrunken legs – what they call “chicken leg syndrome!”

This shift does not harm the astronauts; they may get headaches and stuffy noses. The symptoms go away within a few days after they return to Earth.

In microgravity conditions everything – including body fluids – floats! In a simulation of how fluids shift in astronaut's bodies, you and your child will measure each other's ankle widths before and after lying on your backs with your feet in the air.

What You Need:

- ✦ Magic marker
- ✦ 18 inch string that will not stretch and a ruler or a flexible (cloth) measuring tape
- ✦ A writing utensil and paper for the measurements
- ✦ Timer or watch or clock



What to Do:

- ✦ Using the string and ruler, help your child measure and note the width of his/her ankles – you can mark the position on the string with the marker.
- ✦ Ask your child to lie on the floor with his/her legs resting vertically against the wall. Remain in this position for 1 minute
- ✦ After 1 minute, measure and note the size of your child's ankles while they are still propped up.
- ✦ Now it's your turn! (optional!)

Parent Prompts:

Were your ankles bigger or smaller after propping them up against the wall?

What do you think caused the difference in size?

Where did the fluids go?

What do you observe about pictures of astronauts in space – why are their faces so puffy?