

		
<h2>See you in space</h2>		
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<h3>EXPERIMENT: BIOLOGY – muscles</h3>		

### RESEARCH QUESTION

When astronauts arrive back on earth they have trouble standing up and walking. Why?

### HYPOTHESIS (Indicate the correct answer.)

During their stay in space astronauts have to use their muscles less/more cause there's is less/more gravity. This causes atrophy of the muscles. When they arrive back on earth the amount of muscle is so small they can't stand up or walk very well.

### OPERATION OF THE EXPERIMENT

- Measure your weight standing up straight on a scale.
- Put the scale vertical against the wall. Lie down on your back on with your feet against the scale. Push your legs against the scale. What's your weight now?
- Describe the difference (you feel) in your legs standing up or lying down.

## THE RESULTS / OBSERVATIONS

a) The weight is 72 kg.....

b) The weight is 5 kg.....

c) .....

When you stand up the gravity pulling you down and the muscles of your legs are working and that makes you weigh more. When you lay down these muscles you don't need so much because the gravity pulls to whole your body and not alone to your legs.

## CONCLUSION

Watch the following clips:

[http://www.slate.com/blogs/bad\\_astronomy/2014/06/08/back\\_to\\_earth\\_how\\_astronauts\\_get\\_back\\_from\\_the\\_space\\_station.html](http://www.slate.com/blogs/bad_astronomy/2014/06/08/back_to_earth_how_astronauts_get_back_from_the_space_station.html)  
<https://www.youtube.com/watch?v=rYnV5P4OuTE>

Combine this information with the results of the experiment.

When astronauts arrive back on earth they have troubles standing up and walking. Why?

..... In the space there is less gravity than on Earth. So the muscles become atrophy. The gravity makes the bones stronger, .....

..... when there is no your bones become less stronger. When they get on Earth they need their muscles but the muscles .....

..... aren't strong enough so that's why it's hard for astronauts to arrive back on Earth. ....

## REFLECTION

Did you expect this answer?

..... Yes because there is no gravity in space that is pulling you down.....

Compare your results with the results in the other school. Did you make the same conclusion?

..... We don't have contact with our French partners yet because they don't answer. ....