

 VRIJE ASO.SCHOOL		
<h2>See you in space</h2>		
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<h3>EXPERIMENT: BIOLOGY – Balance</h3>		

#### RESEARCH QUESTION

Why do astronauts experience space (motion) sickness (also known as space adaptation syndrome)?

#### HYPOTHESIS (Indicate the correct answer.)

For a proper function of the vestibular system (=evenwichtszintuig) we need gravity.

Because there's less gravity, all the movements happen **slower/faster**. The influence of the inertia will also be **smaller/bigger**.

#### OPERATION OF THE EXPERIMENT

- 1
  - a) Head straight, eyes open, spin around 7 times at the most, try to stand up straight (with your eyes open)
  - b) Head straight, eyes closed, spin around 7 times at the most, try to stand up straight (with your eyes closed)
  
- 2
  - a) Head straight, eyes open, spin around 7 times at the most, try to walk on a line (with your eyes open)
  - b) Head straight, eyes closed, spin around 7 times at the most, try to walk on a line (with your eyes open)
  - c) Head tilted, eyes closed, spin around 7 times at the most, try to walk on a line (with your eyes open)

## THE RESULTS / OBSERVATIONS

### Experiment 1

- a) It was not hard at all to stay up straight with opened eyes.
- b) It was harder to stay up straight with closed eyes after spinning several times.

### Experiment 2

- a) It's pretty hard to walk on the line.
- b) With closed eyes it's even harder to walk on the line.
- c) With head tilted and eyes closed, it's almost impossible to walk on the line.

## CONCLUSION

Watch the following clips:

<https://www.youtube.com/watch?v=9sRkBP0I-mc>

<https://www.youtube.com/watch?v=ApE9OUsgvrE>

[https://www.youtube.com/watch?v=ibhZUu\\_ixrI](https://www.youtube.com/watch?v=ibhZUu_ixrI)

Combine this information with the results of the experiment.

Why do astronauts experience space (motion) sickness (also known as space adaptation syndrome)?

Because the body isn't used to being weightless, and it isn't adapted yet with it so the body thinks this feeling isn't normal and that it should stop it. So the body searches for a reason why it has this feeling and thinks it's because of something it ate so it pukes it out.

## REFLECTION

Did you expect this answer?

No, we had not thought about that. But it's a logical, because your body changes when you're out the Earth and your body isn't accustomed.

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

Yes, we did.