

		
<h2>Mars, here we come ...</h2>		
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NAME: Luca De Vaere	NAME: Anna Wojcik	
SCHOOL / CLASS: De Bron, 3WETc	MARKS: /...	
<b>EXPERIMENT: BIOLOGY – bodylength</b>		

### RESEARCH QUESTION

Why does NASA make spacesuits longer than necessary for the bodylength on earth?

### HYPOTHESIS (indicate the correct answer)

In space, because of the lack of gravity, your bodylength is *longer/shorter*.

This has two reasons:

- 1) The muscle mass supporting the astronaut's spine *decreases/increases*.
- 2) The discs between the vertebrae are *thicker/thinner* because they aren't compressed by the vertebrae. This is called "spinal unloading".

### OPERATION OF THE EXPERIMENT

- Put one measuring tape on the wall and one on the table. Work very accurately. Measure all the pupils of your group, both standing up and lying down. Make sure you measure to the millimeter!
- Read the mass of every pupil on a scale.
- Put the mass and length in the table.
- Compare the results by calculating the percentage difference. (Keep in mind the bodylength and the mass of the pupil. )

## THE RESULTS / OBSERVATIONS

name	bodymass (kg)	bodylength standing up (m)	bodylength lying down (m)	percentage difference
Bernd	67 kg	1,82 m	1,84 m	1%
Luca	42 kg	1,55 m	1,56 m	1%
Anna	51 kg	1,65 m	1,66 m	1%
Helena	52 kg	1,63 m	1,64 m	1%

If you lie down, your bodylength is **longer** than when you stand up.

If your bodylength is longer, the percentage difference in bodylength is **bigger**

If your mass is bigger, the percentage difference in bodylength is **smaller**

## CONCLUSION

Watch the following clip: <https://www.youtube.com/watch?v=WQWRd-nm4RE>

Combine this information with the results of the experiment.

NASA makes spacesuits longer than necessary for the bodylength on earth. Why?

***Astronauts in space grow taller, their muscle mass increases and the discs between their vertebrae become thicker because they aren't compressed by the vertebrae.***

## REFLECTION

Did you expect this answer?

***No, because we have never heard of anything like it.***

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

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