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Why do astronauts wear a special combination ?

Hypothesis : Astronauts can't communicate because of the lack of air.

We used specific material to find out if our hypothesis was true.

The equipment was :

- a vacuum pump
- a timer
- a barometer (to measure the atmospheric pressure)
- a sonometer (to measure the sound level)

The procedure and results:

We set up the timer for fifteen seconds and put it under the bell of the vacuum pump with the barometer and the sonometer, the vacuum then pumped out the air and according to the sonometer the timer that was ringing didn't make any sound anymore. When we opened the valve after, the timer was making sound again. The barometer showed us the pressure level was getting lower as well as the sound level.

Conclusion :

To conclude, our hypothesis was true, we can't indeed communicate in space since there is no air and no pressure. To be heard, sound needs vibrations, and without air, there can't be vibrations.

This is why they wear helmets with special radios in them, to be able to communicate with other astronauts when in mission.