Press release

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CNES and MEDES pursue research on effects of weightlessness with Cocktail study

Cocktail is a new study testing countermeasures designed to mitigate the unwanted effects of weightlessness on the human body, to enhance astronauts' performance and to ready them for their return to Earth. The study led by CNES and conducted in partnership with ESA has started at the MEDES space medicine and physiology institute with a bedrest campaign to simulate conditions encountered during spaceflights and investigate the effects of weightlessness.

Ten healthy male volunteers aged between 20 and 45 are to remain in an orthostatic bedrest position with their heads tilted down 6° below the level of their feet. This position simulates the effects of weightlessness by shifting blood towards the upper body, causing the same changes in blood volume, cardiac performance and vascular resistance as in space.

During the study, the volunteers are required several times a day to ingest an anti-oxidant and anti-inflammatory 'cocktail' consisting of a mixture of natural polyphenol extracts from edible plants. To study the effects of this dietary supplement, half of the group is taking the cocktail while the other half, also in the bedrest position, is not and thus acting as a control group.

The volunteers are being monitored by 16 European science teams looking at the changes induced by bedrest and the effects of this cocktail on their metabolism, cardiovascular system, muscles, bones, immune and neurosensory systems, and sleep patterns.

The study consists of two campaigns involving ten male volunteers, from January to April and September to November. Both campaigns will last three months and be conducted in three phases:

- 15 days of pre-bedrest to measure the volunteers' baseline physiological parameters
- Two months of bedrest during which their parameters will be measured again
- 15 days of post-bedrest to study how they recover

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