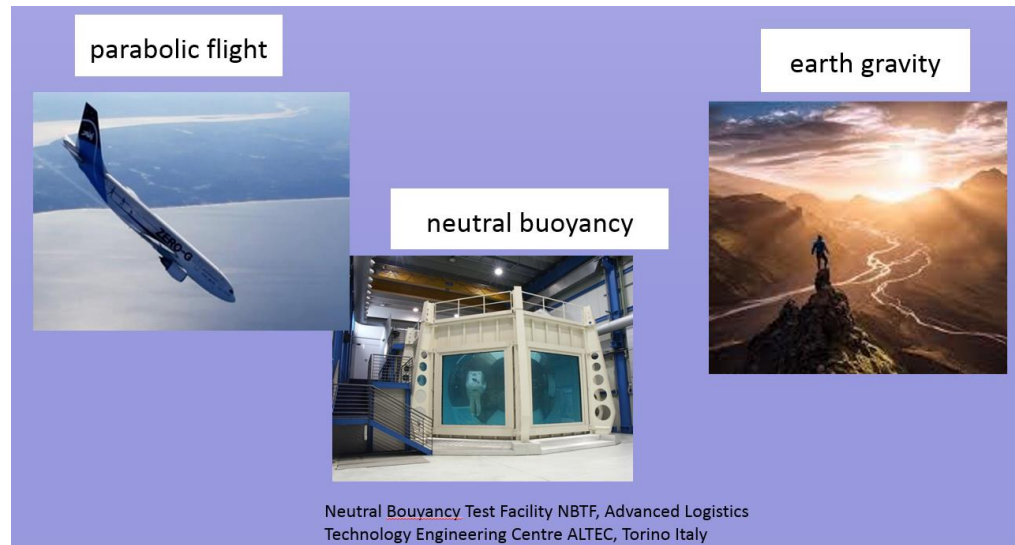


Slide no. 1

REHABILITATION IN MICROGRAVITY: A NEUROPHYSIOLOGICAL APPROACH

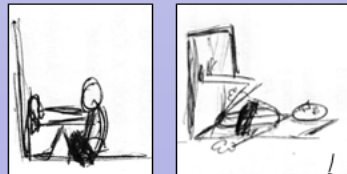
Considering that in micro-gravity demineralization (calcium loss in particular) occurs with an average of 1-2 % each 30 days, astronauts in a travel to Mars could easily encounter osteoporosis and the break of bones without the possibility of re-entry for physical rehabilitation. Starting by the research done since 2006 by the Microgymn group, this paper present investigations on the eld of neurophysiological applications for physical rehabilitation during long-duration space travel in micro-gravity. Experiment in comparative states such as: parabolic ight, earth gravity and neutral buoyancy are described with the function to test possible solution and countermeasure.

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Tied to the floor, or any flat surface in μg or buoyancy, arriving at the maximal for both arms and legs 10 times for 1 second



Thought on exercise protocol:

Laboratory tests may be performed as:

- Ground terrestrial tests
- Tests at high altitude
- Tests in water neutral buoyancy
- Tests in Mars and Moon gravity throughout parabolic flights.

The use of a mechanical dynamometer in this position is also possible in water...



This new rehabilitation approach will be tested in three comparative states.