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WORKOUTS IN SPACE ANALOG STATION HABITAT MARTE

Abstract

This research presents some results from workouts aboard in-person missions in space analog station Habitat Marte based in Brazil. The space analog station Habitat Mars has created new protocols aimed at preparing analog astronauts to participate during in person missions. Since July 2021 until 2022 physical preparation activities are happening. Some warm-up activities developed are: Stretching the dorsal; Stretching of the pectoral muscle; Quadriceps muscle stretch; Triceps muscle stretch. Exercises with elastics are performed to simulate the exercises performed in low gravity developed aboard the International Space Station - ISS. Dumbbells and mats were also used to implement exercises with weights and body weight. Some specific exercises performed: Ventral plank (this exercise strengthens abdominal and lower back muscles); Elastic squat (exercise for grouping the lower muscles, muscles most affected by microgravity); dumbbell exercise for the muscle in the front of the arm (biceps); and Advance with elastic to develop the entire lower group. A survey was also applied before the mission and after the mission in order to assess the initial conditions, as well as the benefits generated from the practice of workouts. Habitat Marte presents a personal trainer that develops and evaluates workouts done by analog astronauts. The follow-up is developed remotely. Some specific workouts performed: 1. Ventral plank (this exercise strengthens abdominal and lower back muscles); 2. Elastic squat (exercise for grouping the lower muscles, muscles most affected by microgravity); 3. Dumbbell exercise for the muscle in the front of the arm (biceps); and 4. Advance with rubber/elastic to develop the entire lower group.

With workouts in Habitat Marte, analog astronauts are awakening the desire to perform physical activities during personal daily life attending physiological needs, bringing personal benefits. Workouts in Habitat Marte can be seen as an innovation and an opportunity to identify new possibilities of research. Also the research is generating a great range of quantitative data. During the Extravehicular Activities (EVA) are recorded and evaluated the data generated by Apple Watch.