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GALVANIZED SKIN RESPONSE IN REDUCED TO MICRO GRAVITY ENVIRONMENT

Abstract

This paper documents the research and testing behind the possibility and reliability of measuring Galvanized Skin Response (GSR) in a low to zero gravity environment. The main question this paper tackles is the viability of measuring the GSR (electrical resistance of the skin) in space. Previous research has shown that GSR is a viable way to measure the emotional stress a human is under using a sensitive galvanometer, it is also used in lie detectors in order to measure the emotional stress levels. Hence, a person's stress levels can be assessed during critical tasks in space environment such as spacewalks. GSR has been shown in studies to detect a person's emotional stress levels prior to the person's knowledge of it, hence it can be used as a predictor if the astronaut's task in a spacewalk or other critical tasks can be paused by a monitor prior to the emotional stress leading to an increased chance failure of the task. The testing method used for testing the GSR involved using a zero-gravity flight and sensors attached to the subject. This was conducted by taking GSR measurements of the subject using a reliable galvanometer to measure the response of the stress induced by the person being exposed to different gravity levels which are Martian gravity, lunar gravity, and zero (micro) gravity levels. Data collected included the subject's ECG, Skin Resistance, and the acceleration levels effecting the subject. Initial findings from the test have shown promising results when measuring the GSR under the effects of different gravitational levels. Hence, GSR introduces the possibility of a promising new method of monitoring the astronaut's emotional stress levels and detecting the increased risk of failure introduced by it during critical tasks.