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MITIGATING THE EFFECTS OF FREE-FALL ADAPTATION USING VESTIBULAR YOGA TRAINING

Abstract

Altered vestibular functions due to free-fall environment of space travel has plagued astronauts since the beginning of the space age. These effects can range from minor annoyance and impairment to complete debilitation. Fortunately most astronauts adapt, to some extent, to this environment within a few days. Upon returning to earth, they then need to re-adapt to a 1G environment. This paper will examine vestibular yoga training (VYT) as a method for reducing free-fall adaptation time, the 1 G re-adaptation time, and as a way to provide overall enhance performance for crew. This paper begins with a brief review of the vestibular system and the effects astronauts experience in the free-fall environment, followed by a description of VYT. Vestibular Yoga Training consists of a series of yoga derive postures and breathing techniques combined with eye movements, designed to help individuals recover from vestibular damage due to accidents, aging, or other issues; as well as enhance overall focus, balance and coordination. VYT promotes an increase in sensory function and fine motor skills. Improvements can be noted through the alignment of multiple systems in the body to include musculoskeletal, respiratory, circulatory, in addition to vestibular benefits. VYT was developed by the author following a devastating car accident resulting in traumatic brain injury and physical incapacitation. Personal benefits as well as those of the author's clients are discussed. The paper concludes with a proposed research program- including hypotheses and VYT regimens- to investigate how VYT could be used by astronauts to mitigate free-fall adaptation effects.