

# **Auriculotherapy and Aircrew With Circadian Desynchronization: Aeromedical Implications**

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## **ABSTRACT**

Auricular electrotherapy may offer an effective, drug-free alternative or complementary treatment for circadian desynchronization (jet lag). During operational flight missions, 5 aircrew members were treated for circadian desynchronization using a Pointer Plus device. All members reported restful, restorative sleep without side effects. All participants expressed future preference for auricular therapy over pharmacotherapy for circadian desynchronization.

## **KEY WORDS**

Circadian Desynchronization, Jet Lag, Reflex Somatotopic System, Auricular Acupuncture, Electro-Auriculotherapy, Sedative-Hypnotics, Pharmacotherapy, Aircrew, Aeromedical Implications, Alternative Medicine, Complementary Medicine

## **INTRODUCTION**

Auricular acupuncture is based on a reflex somatotopic system organized on the surface of the external ear. Auricular acupuncture is known to augment and prolong the efficacy of regular acupuncture therapy, especially in the areas of traumatic pain management, as well as other organic and functional problems. Currently, the United States Air Force (USAF) authorizes the controlled use of certain sedative-hypnotics during military operations for circadian desynchronization (jet lag). As in the civilian sector, military members seek drug-free, alternative forms of therapy. If proven effective, the use of auricular electrotherapy is an appealing alternative and/or complement to jet lag management. An opportunity to evaluate this treatment modality availed itself in the military flying population, which is described herein.

## **REPORT OF CASES**

Auricular electrotherapy<sup>1</sup> was performed on 5 USAF aircrew members suffering from circadian desynchronization during flight operations into Southwest and/or Southeast Asia. The treatment group desired a drug-free treatment for jet lag and declined the usual pharmacotherapy regimen as authorized by the USAF. Consent was obtained from all participants. Auriculotherapy was not performed within 12 hours of expected flight duty operations.

## **TREATMENT**

A Pointer Plus device was used to treat ear points. Ear points were Shen Men, Point Zero, Sleep Disorder 1 and 2, as well as the Pineal Gland. The Pointer Plus is an electronic ear stimulator and

point detector with the following output: a frequency of 10 Hz, a pulse width of 220 microseconds, and a pulse shape of an asymmetric biphasic square wave. Each point was treated for approximately 20 to 30 seconds.

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## **RESULTS**

Five aircrew members suffering from circadian desynchronization during flight operations reported restful, restorative sleep with auricular electrotherapy. The somnifacient-inducing effects of auricular therapy were noted within 1 to 3 minutes of treatment. The average sleep period for the group was 6 hours. No significant adverse effects were noted or reported by aircrew members. Aircrew members reported satisfaction at the efficacy and effectiveness of auriculotherapy vs. pharmacotherapy. Participants expressed future preference for auriculotherapy over pharmacotherapy for jet lag management.

## **DISCUSSION**

Further evaluation comparing sedative-hypnotics, auriculotherapy, and placebo, as well as studying a larger population, is indicated. Only physicians properly trained in auriculotherapy are encouraged to use this modality. Improper auricular stimulation may adversely affect aircrew health, flying safety, and/or mission accomplishment.

## **CONCLUSION**

Based on this very small case series, it is believed that auricular electrotherapy may be a promising, effective and drug-free alternative treatment modality for jet lag management.

## **REFERENCES**

1. Oleson, Terry, PhD, Auriculotherapy manual: Chinese and Western systems of ear acupuncture, 2<sup>nd</sup> edition, Los Angeles: Health Care Alternatives, Inc., 1996:176-177, 180, 194.

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