STS-95

Vestibular Function Experiment Unit (VFEU)

The goal of the experiment entitled "Chronic Recording of Otolith Nerves in Microgravity" is to study the effects of microgravity on the vestibular system in the Oyster Toadfish, *Opsanus tau.* The microgravity environment has adverse effects on balance and perception in humans and animals in space. By studying the vestibular organs of the inner ear and the nerve connections to the brain, a better understanding of this interaction can lead to strategies to prevent or control space adaptation sickness. In addition, future therapies can be developed for control of Earth-bound motion sickness.

To study the perfomance of the vestibular organs and the central nervous system, electrodes will be implanted in the nerves connecting the vestibular (inner ear) organs and the brain. Responses to 0 g stimulus will be recorded by hardware during the mission. This experiment is a collaboration with the Japanese National Space Development Agency, (NASDA).

Oyster Toadfish

One VFEU will be flown to support two toadfish in two fish packages. The fish packages provide a stable aquatic environment for the toadfish. The toadfish will be implanted with multichannel electrodes connected to the eighth cranial nerve. Once implanted, the nerve regenerates and records the level of vestibular activity over the 9-day mission. The electrode and nerve impulse transmitter package allows nerve impulse data to be collected by a receiver in the wall of the fish package.

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FS-1998-09-04-ARC