High-salt diet may disrupt body clock

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Although health experts have long known a high-salt diet (HSD) is harmful to the cardiovascular system, new research finds that it may also disrupt the body's internal rhythms directly. The research will be presented virtually at the Seventeenth International Conference on Endothelin (ET-17).

Disruption of the body's circadian rhythm is associated with increased risk of metabolic syndrome, inflammation, mood disorders, cancer and even premature death. With an estimated 90% of the U.S. population over 2 years old consuming too much salt, these new findings could have widespread implications.

The region of the brain called the suprachiasmatic nucleus (SCN) synchronizes all the clocks throughout our body. The SCN contains a type of receptor called endothelin B receptors. Elsewhere in the body endothelin B receptors play a key role in managing sodium. In fact, medications that block endothelin B receptors are prescribed to manage pulmonary hypertension.

Researchers at the University of Alabama at Birmingham fed mice an HSD and measured their movement throughout the day as well as their neuronal activity. Although their total activity was similar to control mice, HSD mice did not follow sleep-wake patterns established as normal by previous studies.

A hallmark trait of the SCN is to have higher neural activity during the day and less at night. However, HSD mice exhibited significantly elevated neuronal excitability at night as compared to control mice. "Neuronal excitability at night could lead to decline or mistiming of sleep-wake, hormonal and physiological rhythms," researchers wrote.

Nighttime neural activity abated when the mice were treated with an endothelin B receptor blocker. This abatement demonstrates both that the endothelin system may affect circadian rhythms and that endothelin B receptor medications could have unexpected impacts on the body clocks of people taking them.

More information: Conference: www.physiology.org/professiona … onf-endothelin?SSO=Y

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