

## Spa Bathing Relieves Stress

Researchers at Osaka University in Japan have found that spa bathing has a moderate effect on stress relief.

According to the authors of the study, "Change in Salivary Physiological Stress Markers by Spa Bathing," spa and sauna bathing have been shown to produce positive physiological effects in previous

studies. In this study, the stress-relief effects of spa bathing were assessed by measuring two sensitive salivary stress markers, cortisol and chromogranin A (CgA). Cortisol, a hormone produced by the adrenal glands, is secreted in response to stress. CgA is a protein, also secreted by the adrenal glands, and is measured as an index of physiological stress.

Twelve male university students participated in this study. They bathed for 60 minutes in a local spa, which had an average water temperature of 107.6°F and a mineral composition of sodium and chloride. Saliva samples were collected immediately before and after the baths, and then again 30 minutes later. As a control measure, salivary samples were collected from the same individuals at the same time on another day.

Salivary cortisol levels decreased significantly in both samples taken after the spa-bathing treatment, especially in the individuals with higher levels of stress at baseline. The study group was then divided into either a high-stress or a low-stress group, according to baseline stress-level rating. The high-stress group showed lower salivary CgA levels after spa bathing, while the low-stress group had higher salivary CgA levels in the same condition. Samples taken during the control period showed no significant change in levels of either marker.

Although the mechanism was not pinpointed in this study, the authors suggest that the marker levels may have been modified by increased sympathetic activity in response to thermal stress. They conclude that these findings suggest spa bathing can provide moderate relief for people experiencing low or high stress.

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