Move, Soak, Sleep: How Physical Activity and Balneotherapy Boost Restorative Sleep

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Background: In our modern society, achieving high-quality sleep is increasingly challenging. We conducted a study to explore the potential benefits of daytime physical activity and balneotherapy, including mud application and thermal-water bathing, on sleep quality.

Methods: We monitored 127 healthy participants (34.6% male, average age 64.61 ± 0.89 years) during a one-week stay at a spa resort, where they received mud application and thermal-water bathings. Participants wore actigraphs to track their daytime physical activity and sleep patterns.

Results: Participants were divided into three groups based on the timing of mud application during the week. Those receiving mud application before 8:30 a.m. tended to have shorter sleep durations compared to those with later application, especially if it occurred before 7:45 a.m. However, mud application did not significantly affect sleep quality. Increased daytime physical activity positively influenced delta sleep efficiency, with highly active individuals exhibiting a 1% improvement compared to their less active counterparts (1 ± 0.53% vs -0.71 ± 0.15%; not statistically significant). Furthermore, Analyzing the duration of daily thermal-water baths, individuals bathing for over 75 minutes per day experienced a noteworthy improvement in sleep quality, particularly in terms of delta sleep efficiency (2.15 ± 0.9% vs -0.34 ± 0.31%, $p = 0.007$).

Conclusions: Our findings suggest that extended thermal-water baths (exceeding 75 minutes) and maintaining an active daily routine may enhance subjective aspects of sleep quality.