

SPACE LIFE SCIENCES SYMPOSIUM (A1)
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State Key Laboratory of Space Medicine Fundamentals and Application, China Astronaut Research and
Training Center, China, wubinacc@sina.comATTENUATED ALERTING AND LESS EFFECTIVE EXECUTIVE FUNCTIONING AFTER THREE
NIGHT'S SLEEP DEPRIVATION**Abstract**

The aim of the present study was to evaluate the effects of 72 hours sleep deprivation (SD) in pent-up environment on individual attentional networks. In the pent-up environment, 12 normal male participants performed the attention network test (ANT) under two different sleep conditions: the baseline (normal nights of sleep) and the deprivation (seventy-two hours of wakefulness). During 72 hours of SD, participants performed the ANT three times. We also examined the effects on the event-related potentials (ERPs) of the ANT pre- and post-SD. Results from behavioral data showed a significant slowing in reaction times (RT). Participants also had a significant decrease of accuracy (ACC) and an increase of missing rate after the SD, which indicated significant effects on alerting attention. However, the pent-up environment itself did not affect participants' behavior performance (ACC and RT) significantly. The RT prolonged as the duration of SD went on and their effects on attentional network reached the maximum after 40 48 hours SD. From the results of ERPs, we found smaller cue-locked N1 and target-locked N2 amplitudes after SD which indexed attenuated alerting and less effective executive functioning.