



## Defense Health Agency (DHA) Clinical Communities Speaker Series

### 2024 OCT CCSS: Fostering Quality and Excellence in Military Specific Care

#### S02: Advancing Healthy Sleep in the Military: Spanning the Field to the Clinic

##### Resource List

The military lifestyle often includes continuous operations whether in training or deployed environments. These stressful environments present unique challenges for service members attempting to achieve consolidated, restorative sleep. According to the authors of the article [Sleep in the United States Military](#) (2020), the significant mental and physical derangements caused by degraded metabolic, cardiovascular, skeletomuscular, and cognitive health often result from insufficient sleep and/or circadian misalignment. Insufficient sleep and resulting fatigue compromises personal safety, mission success, and even national security. In the long-term, chronic insufficient sleep and circadian rhythm disorders have been associated with other sleep disorders (e.g., insomnia, obstructive sleep apnea, and parasomnias). Other physiologic and psychologic diagnoses such as post-traumatic stress disorder, cardiovascular disease, and dementia have also been associated with chronic, insufficient sleep.

Genes may play a significant role in how much sleep we need. In the article [Brain Basics: Understanding Sleep](#) (2024), scientists have identified several genes involved with sleep and sleep disorders, including genes that control the activity of neurons, and "clock" genes such as *Per*, *tim*, and *Cry*, that influence our circadian rhythms and the timing of sleep. Scientists have found that different genes are linked to sleep disorders, such as sleep disorders as familial advanced sleep-phase disorder, narcolepsy, and restless legs syndrome. Some of the genes expressed in the cerebral cortex and other brain areas change their level of expression between sleep and wake. Several genetic models—including the worm, fruit fly, and zebrafish—are helping scientists to identify molecular mechanisms and genetic variants involved in normal sleep and sleep disorders.

In the American Heart Association (AHA) article [Insomnia and Heart Health](#) (2023), research suggests that insomnia puts you at a higher risk of cardiovascular disease (CVD). While scientists are still working to understand the full connection between insomnia and cardiovascular disease, they've found many reasons to believe insomnia can raise the risk of cardiovascular disease. In one study, they found that patients with insomnia had a 45% higher risk of cardiovascular disease. For example, there is evidence that insomnia increases the stress hormone cortisol and changes your body's stress response, which can increase the risk of cardiovascular disease, along with diabetes, anxiety, and depression.

Studies have also shown that shortened or disrupted sleep, like the symptoms of insomnia, can increase blood pressure and inflammation, which may raise the risk of CVD. And other research has shown a connection between short sleep and calcium buildup in the heart arteries, which can also contribute to a higher risk of cardiovascular disease. The risk of stroke can also go up as a result of insufficient sleep. The connection between insomnia and stroke risk needs more research, but one large study found that people with insomnia had a 54% higher risk of stroke within four years.



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