Rocky Vista University (RVU) Vagal Approaches Study Newsletter

WE ARE GRATEFUL YOU ARE HERE! YOU ARE CENTRAL TO THIS TRIAL AND WE WANT YOU TO BE INFORMED OF OUR PROGRESS. YOU ARE NOT ALONE IN YOUR EXPERIENCE WITH LONG COVID.

Why are we measuring sleep?

During sleep, the body's key systems (those that control heart rate, inflammation, metabolism, and general recovery) are easier to observe without being affected by movement, stress, etc. This makes sleep a valuable time to spot any issues, including problems caused by Long COVID.

Long COVID doesn't just affect how your nervous system works — it may also change the way you sleep. Many people with Long COVID report feeling exhausted even after sleep. That's because it's not just about how *long* you sleep, but how *well* you sleep. In simple terms, when the structure of sleep is off — like not getting enough deep sleep or waking up frequently — it can make it harder for the body and brain to fully recharge. This may help explain why people with Long COVID might feel fatigue, brain fog, or a general sense of not feeling rested, even after sleeping.

If you have questions or would like to suggest a topic for the newsletter, reach out to our team at longcovidwellness@leidos.com.

How does sleep connect with Heart Rate Variability (HRV)?

There are four stages of sleep, including one for rapid eye movement (REM) sleep and three others for non-REM sleep. During healthy sleep (especially non-rapid eye movement [REM] sleep), your "rest and digest" system has greater control over your heart. That leads to slower heart rates and higher HRV. That's why HRV is often higher at night under good sleep conditions.

In REM sleep, HRV tends to dip a bit compared to deeper non-REM stages.

Studies show that HRV measured during stable parts of different sleep stages – whether during non-REM (light or deep sleep) or REM stages - is consistent and dependable[1]. That gives researchers confidence that the values they see at night are meaningful, not just noisy artifacts. If sleep is disturbed (insomnia, etc.), HRV tends to drop[2]. If autonomic balance is disrupted, sleep HRV can reveal that disruption more clearly.

[1] https://pubmed.ncbi.nlm.nih.gov/35559723/

[2] https://pubmed.ncbi.nlm.nih.gov/40895095/

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