The deep-sleep phases of the sleep cycle are what repair and refurbish the brain. The lack of this deep sleep not only leads to fatigue, brain fog, and migraine, but it can also manifest a predisposition to other conditions like epilepsy, Parkinson's disease, and chronic pain conditions. Migraine is linked to the pain system in the brain stem; lack of sleep may prevent the brain from making the chemicals that keep this pain switch "off." Migraine may involve a gene mutation that could help us sleep more readily. However, in our modern environment — where vitamin D deficiencies are common and gut biomes are lacking — the brain's sleep switches may be dampened, while the neighboring pain switches may be heightened. Sleep medications and CPAP machines are only a temporary fix for sleep disorders: The key is to build up vitamin D levels, but those must be maintained by having a healthy microbiome.