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Primary Research Interest:	Physical Medicine & Rehabilitation
Description of Research:	In the mild traumatic brain injury (TBI) population, the treatment of sleep difficulties is complicated by multiple coexisting symptoms, especially pain, depression, and anxiety, and the risk of sleep medication side effects. Complementary alternative medicine (CAM), such as acupuncture, can potentially provide efficacy in treatment of sleep difficulties with fewer side effects. The long-term goal of this line of research is to evaluate whether acupuncture as a CAM modality which is largely free of side effects and easily adapted for widespread use can be integrated into the treatment of sleep disturbances and sleep related symptoms in the TBI population. Additionally, there will be an attempt to clarify the pathophysiology of sleep difficulties in mild TBI and to assess the role of the autonomic nervous system (ANS) as a possible underlying mechanism for normal and abnormal sleep in this population. Lastly, there will be an attempt to define common characteristics of sleep difficulties among different populations, such as patients with chronic pain or post-traumatic stress disorder, which can be treated with the same principle as in mild TBI.
Relevance to VA:	Sleep disturbance is common in many veteran populations, including veterans with traumatic brain injury (TBI), and constitutes a serious problem affecting patients' function and QoL. This research includes the exploration of the mechanism(s) that underlie sleep difficulties, using mild TBI as a model, and the development of innovative and effective interventions with potential integration of acupuncture to improve various sleep outcomes, decrease risk for sleep medication side effects, and improve QoL. And, it will include unraveling the complex dimensions of the problem and possible common neural mechanism(s), such as autonomic nervous system (ANS) activity, that may underlie sleep disturbance and other coexisting symptoms in this population, especially pain, depression, and anxiety.