Military personnel often train and operate strenuously in harsh environments that constrain the ability to provide, access, and consume sufficient food to meet nutritional requirements and, subsequently, sustain optimal performance. These limitations can compound the physiological consequences of metabolically challenging military operations. Identifying effective approaches to ensure adequate nutrition are necessary, especially during operations that elicit severe negative energy balance and associated losses of skeletal muscle mass. This presentation will provide a contemporary review of military nutrition research and draw parallels or identify inconsistencies between nutrition during real-world military operations and the scientific basis and application of current sports nutrition recommendations. Recent well-controlled clinical and military field studies evaluating the effects of dietary protein and carbohydrate intake during and in recovery from stressors such as mock survival and prisoner of war training, cold-weather training and sustained high altitude operations will be discussed. Skeletal muscle protein balance, carbohydrate utilization and the mechanisms by which optimal nutrition may sustain muscle mass and physical performance during military operations will be highlighted.