Abstract
We review the biochemistry and physiological role of the amino acid tyrosine in normal and stressful situations such as military sustained operations. Sustained operations consist of continuous work periods exceeding 12 h and often involve sleep loss and fatigue. These, in turn, can lead to stress, anxiety, mood deterioration, and performance decrement. Experimental data in the literature suggest that tyrosine, a precursor of the neurotransmitter norepinephrine, may be useful in counteracting any stress-related performance decrement and mood deterioration in the following way. First, various forms of stress induce brain depletion of catecholamines, especially norepinephrine, in animals. Second, brain norepinephrine levels are closely related to stress-induced performance decrement in animals. Third, the administration of tyrosine may minimize or reverse stress-induced performance decrement by increasing depleted brain norepinephrine levels. The types of performance degradation expected in military sustained operations and the potential physiological role tyrosine might play in improving mood and performance are discussed.