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Sommario/riassunto	<p>Both the acquisition of new and the modification of previously acquired motor skills are necessary to achieve optimal levels of motor performance in everyday functioning as well as to attain expert performance levels that are evident in sports and arts. A multitude of factors have been shown to influence the various stages of the learning process, from the acquisition (i.e., motor memory encoding) to the consolidation and subsequent retention of a skill. These factors, or modulators, can affect learning through online processes taking place during practice of a new motor skill or through offline processes occurring in the absence of task performance (i.e., after training sessions). Although much of the recent research from various disciplines has placed an increased emphasis on identifying factors that can influence the motor learning process, we lack an integrated understanding of online and offline determinants of motor skill behaviours. Potential motor learning modulators include, but are certainly not limited to, stress, anxiety, attention, executive functioning, social interaction, stimulus-response mapping, training schedule/regimen, learning environment, vigilance/consciousness states including sleep, wakefulness or meditation, brain stimulation, interference as well as resting state brain connectivity. Pathological and non-pathological (i.e., development or aging) changes in the brain can also be conceptualized as potential modulators. The aim of this Research Topic is to bridge research from the cognitive, sensory, motor</p>

and psychological domains using various behavioural paradigms and neuroimaging techniques in order to provide a comprehensive view of the online and offline modulators of motor learning, and how they interact to influence motor performance. Critically, the overarching goal is to gain a better understanding of how motor behaviour can be optimized. We believe that merging research from diverse neuroscientific communities would contribute to fulfilling this goal and potentially highlight possible shared neurophysiological mechanisms influencing motor learning.
