



Figure 4-1. Midsagittal view of the brain with clear depiction of the dorsal, medial, and orbitofrontal areas; basal ganglia; and motor and sensory cortices.

goal-directed action. Thus, action possibilities are formed at multiple levels within these widespread systems and are enhanced or inhibited at different levels of the process to generate a specific response. Occupational adaptation heavily relies on the individual's ability to generate multiple action possibilities (adaptive response mechanisms; Schkade & Schultz, 1992) and the presence of healthy and accurate enhancing and inhibitory mechanisms for the final action selection. In the Occupational Adaptation (OA) model (Schkade & Schultz, 1992), this process is equivalent to specific adaptive response generation, evaluation, and integration processes.

Specific Brain Structures and Circuits

The *prefrontal cortex* is located in the anterior (front) of the brain and is part of the neocortex. Different areas in the prefrontal cortex differentially influence the action selection process. The prefrontal cortex is required for executive control of behavior (McGuire and Botvinick, 2010; Ridderinkhof, van Den Wildenberg, Segalowitz, & Carter, 2004) and for effective coping with stress (Amat et al., 2014; Sotres-Bayon & Quirk, 2010; Warden et al., 2012). Prefrontal dysfunction has been implicated in mood and anxiety disorders, which are typically associated with stressful life events (Etkin, Merhav, & Ordentlich, 2010; Mayberg et al., 1999; Milad & Quirk, 2012). Three main regions and related networks are distinguished for their differential contributions to action selection (Figure 4-1).

The *dorsolateral prefrontal* network involves the dorsolateral prefrontal regions (dorsal/upper region of the prefrontal lobe) that connect to sensory and motor association