BALANCE AND BALANCE EXERCISE IN NEUROLOGICAL

Chapter 4

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What is Balance?

Balance is a set of functions that require simultaneous and continuous data processing of many different systems, including sensory inputs (visual, vestibular, and proprioceptive), cognitive integration (executive functions and particularly attention), cerebellar processes, motor, and sensory feedback. This complexity of the equilibrium mechanism explains why postural imbalance is a common symptom in neurological disorders. People with neurological diseases may be affected by one or more of these structures and systems (2). In the standing position, the center of gravity is higher in humans than in other creatures, and the support area is narrower, making it difficult for them to maintain their balance status, to gain their ability to regain their balance. It requires a more complex system organization for man's ability to balance (3). The prevalence of equilibrium problem in neurological diseases causes postural control disorders and falls stories to occur frequently. Impaired balance not only causes an increase in the risk of falling but also causes a decrease in functional independence and an increased risk of death and disease. Maintaining balance is one of the main goals of physiotherapy and rehabilitation in neurological diseases because patients limit their independence in daily living activities (4, 5). In this section, the central nervous systems providing the above-mentioned equilibrium state and the problems that may occur in these sections and rehabilitation issues of these problems will be discussed.

Neural Mechanism of Balance

The postural release reflects the regulatory activity of several control cycles involved in maintaining balance. This requires that the center of gravity never deviate from the support area. This includes controlling the appropriate level of

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