Analysis of dynamic sitting balance on the independence of gait in hemiparetic patients

The purpose of this study was to investigate the relationship between dynamic sitting balance and walking ability in stroke patients. Patients were evaluated using functional independence measure (FIM), and those with a locomotion score of 5 or below were categorized into the dependent walking and below group (dependent group) and those with a score of 6 or above were categorized into the independent walking group (independent group). They were asked to take a sitting position at the center of an unstable platform (seesaw). The experimenter passively tilted the unstable platform to the paretic side or non-paretic side by $10^\circ$ in the frontal plane. The unstable platform was released suddenly, with the experimenter supporting the platform with both hands, and the subjects were asked to control their posture so that their body axis came to the vertical position and the platform came to the horizontal position in the frontal plane.

As a result, the body axis of left-hemiplegic patients significantly tilted to the non-paretic side. On the other hand, in the supervised group in the right as well as left hemiplegic patients, the patients heads were tilted to the side from which tilting was started, though not significantly in both conditions.

This study demonstrated that patients with poor walking function have a deviated verticality of the head and the body axis. We surmise that patients whose body axis tilts toward the non-paretic side during a dynamic balance maintenance task like this test would have lower walking independence.