

Fig. 1. Typical stabilogram.

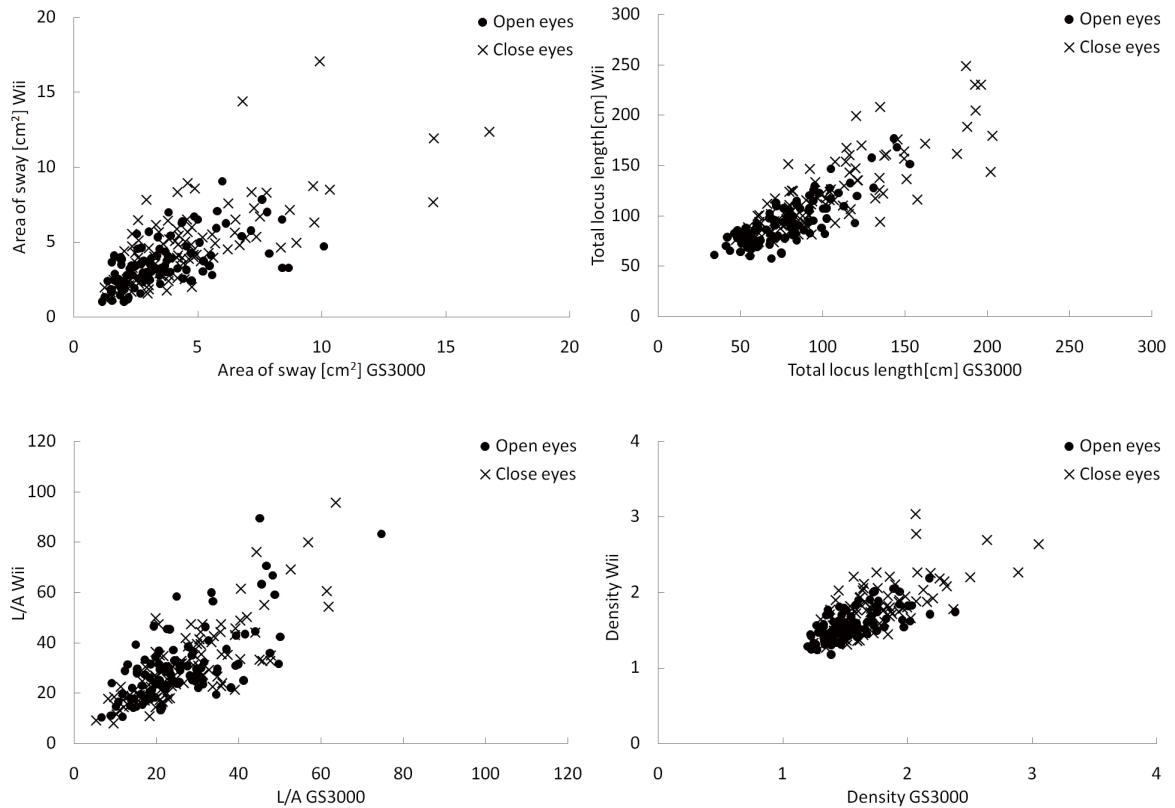


Fig. 2. The scatter diagram of the indices obtained from GS3000 and Wii Balance Board.

that the equilibrium system is associated with the symptoms of motion sickness. This provides a basis to quantitatively evaluate motion sickness based on body sway, an output of the equilibrium system.

In this study, we examined the possibility of stabilometry using the Wii Balance Board. We also examined the effect on equilibrium function of stabilometry done with subjects viewing 3D images.

## 2. Material and Methods

### 2.1 Experiment 1

The subjects were 102 persons between the ages of 18 and 85 years with no past medical history of ear or nervous system diseases. The experiment was explained to all subjects and written informed consent was obtained in advance. The study was approved by the Ethical Review Board of the

Graduate School of Information Science at Nagoya University.

Two kinds of stabilometer were used in this experiment. The first device was a Gravicorder GS3000 (ANIMA Corp.), generally used as a medical device. The second device was a Wii Balance Board (Nintendo). The subjects stood upright on each of the devices in Romberg's posture. After resting for 30 seconds in a standing posture, the body sway was measured for one minute each with open and closed eyes consecutively. In tests with open eyes, a gazing point was placed 2 meters in front of the subjects at eye level, and the subjects gazed at it. The sampling frequency of Gravicorder is 20 Hz, and the sampling frequency of the Wii Balance board is 100 Hz. Therefore we resampled the Wii Balance Board at 20 Hz.

The  $x$ - $y$  coordinates were recorded at each sampling