Version 2

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Foulage test V.2

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ABSTRACT

The Foulage test is a test in which the stepping is recorded with the eyes open and closed by the ground contact method for 60 seconds in accordance with the metronome BPM120 by counting the sway of the center of gravity. The enlargement of the area of the still-standing object on a stabilometer means unstable directly. However, the dynamic test must divide the unstable movement to the active. The stepping of Foulage test is regulated that 120bpm tempo, upright standing with both arms set on the body-side, foot closed, toes keep touching on the plate constantly, so object can change only height of heels to rise up alternatively. Foulage is a French word for "grape trampling" in which grapes are crushed barefoot in the process of winemaking. This is because the ground contact method is different from the conventional stepping method of a march that raises the sole of the foot.
In a stable stepping of a healthy person, it is considered that the left and right folds and the front-back shift are constant to some extent, and 120 steps and 60 reciprocations are added to the same locus, and an inverted V-shaped locus with a certain width. Here, the inverted V-shaped locus is close to a rectangle bent at the center, and its long side can be considered as the average moving distance (L / 120) of one step. The outer peripheral area of the inverted V-shaped locus, that is, the area A of the bent rectangle can be estimated by multiplying the length of the long side and the short side (front-back width). We defined front-back width as FT value.
Our results in normal subjects showed that the height of heels enlarges the total locus length. Pearson correlation analysis revealed that FT value of healthy object plateaued under stable condition (400<L<1400). Therefore, the test should be performed within the range of heel height where the footsteps are stable in healthy subjects. In addition, we proposed the new parameters; the variance of steps is more direct parameter of stability. The plotting figure of steps and the time-graph can show the movement of a subject visually.

ATTACHMENTS

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KEYWORDS

Foulage test., Stepping test, Stabilometer, Dynamic equilibrium test

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MATERIALS TEXT

1. Stabilometer (GP5000, Anima, Tokyo, Japan)
2. Personal computer (PC) (FMVU75B1B, Fujitsu, Tokyo, Japan)
3. Operating system: Windows® XP, Vista, 7, 8, 9, 10 (Microsoft, Redmond, WA, USA)
3. Microsoft® Excel (Microsoft)
4. Foulage test software (Patent pending)

SAFETY WARNINGS

1. Errors are shown if the heel is too high (approximately 15 cm). Please restart.
2. Falling from the platform should be prevented by the careful observation.

BEFORE STARTING

Patients should be told to perform foot closed, that is, with feet straight and parallel to each other, lifting only the heels with 2–6 cm of heel height alternately in time with a metronome at a tempo of 120 beats per minute (BPM).

1 **1st:** A step on the center of stabilometer (GP5000, Anima, Tokyo, Japan) with foot closed, lifting only the heels alternately with the metronome at a tempo of 120 BPM, for 60 seconds with eyes open.

2 **2nd:** A step on the center of stabilometer (GP5000, Anima, Tokyo, Japan) with foot closed, lifting only the heels alternately with the metronome at a tempo of 120 BPM, for 60 seconds with eyes closed.

3 **3rd:** FT value is automatically calculated, and graphs are drawn in the Foulage test software. The variance of steps is manually calculated, and graphs are drawn in the Excel file.

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