Fig. 4. A part of the flow chart of our mathematical algorithm of the sensor output signal evaluation system (Shiozawa *et al.*, 2006a, 2007).

muscles corresponding to the patterns (BFT).

The subjects performed BFT for 2 min. We ensured that the body sway was not affected by environmental conditions; using an air conditioner, we adjusted the **temperature** to 25°C in the exercise room, which was large, quiet, and **bright**. All subjects were tested from 10 am to 5 pm in an exercise **room**. All subjects gave consent in writing after a sufficient explanation of this study.

2.2 Subjects

The subjects consisted of 49 healthy adults aged 20–73 years (mean, 44.3 ± 19.9 years). All of the subjects were Japanese and lived in Nagoya and its environs. The following were the exclusion criteria for the subjects: subjects working in a night shift, subjects with a dependence on alcohol, subjects who consumed alcohol and caffeine-containing beverages after waking up and within two hours of eating a meal, subjects who may have had a previous history of bone, joint, or nerve problems, and special strength

training exercises were not usually done. The subjects were not prescribed drugs for any disease.

They performed BFT for 2 min. We ensured that the body sway was not affected by environmental conditions; using an air conditioner, we adjusted the temperature to 25°C in the exercise room, which was large, quiet, and bright. All subjects were tested from 10 am to 5 pm in an exercise room. All subjects gave consent in writing after sufficient explanation of this study.

2.3 Examination procedure

The subject sat back on a four-legged stool, and electromyographic electrodes were applied at an interval of several centimeters to the center of the femoral rectus muscles in the dominant left or right leg (Fig. 2). The subjects were instructed to kick a fixed belt by moving the bottom of the lower leg forward (kicking motion). A special electromyographic transformation box (AP-U027, TEAC Co.) was connected to a commercially available portable and versa-