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Discussion of the Center of Gravity Sway of Standing

Posture—Its Relation to the Continuation of Physical Exercise

By *Mitsuo Sasaki**

Is it possible that body balance, which is one of the common features to superior sports competitors, can be improved by the continuation of physical exercise?

The purpose of this study is to provide basic materials for body balance required in practicing exercise.

The method used in the experiment was to measure the length of sway (mm) and the area of sway (cm²) in standing posture while subjects opened or closed their eyes for 20 seconds respectively, as well as while they stood only on their left legs or right legs for 10 seconds.

The equipment used in the measurement were the Gravicorder (Model G4301S made by Anima) and X.Y. Recorder (Model G1800 made by Anima).

The subjects participated in the experiment were (1) ninety-two healthy untrained males, (2) seventeen male athletes, twelve male basketball players and eight male gymnasts who were training themselves to participate in extramurals, and (3) eleven basketball players representing Japan.

Results and Discussion

(1) In standing posture, the length of sway can somewhat be reduced by the continuation of physical exercise.

(2) As to the length of sway and the area of sway, it seems that biomechanical meaning of the former differs from that of the latter. That is, in the study of this time, the length of sway was reduced by the continuation of exercise, however, no change was noted in the area of sway, while the eyes were opened.

(3) In the case of standing with one leg only, nothing superior was noted in either leg of the subjects who have continued the physical exercise compared with

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who not continued.

(4) The center of gravity on foot was found to be located close to the toe by the continuation of exercise.