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## Discussion on Hitting Motion in *Kendō*

Change of Angle between Extended Upper  
Limb and Thigh & Change of Knee Angle

*By Shuji Fukumoto\**

The first of the basic requirements for the hitting and stabbing motions made in the *Kendō* seems to be the perfect coordination of *Ki* (spirit), *Ken* (sword maneuver), and *Tai* (bodily movement). It appears that, of these three elements, the "bodily movement" assumes relatively greater importance. With a view to observing the process of thigh change and of knee change in the motion of hitting the adversary's head, the author in the present study selected an unskilled group, a semi-skilled group, and a skilled group, each consisting of 6 *Kendō* players, and followed them in their hitting motion so as to measure the angle changes taking place in the process where the sword is held aimed at the adversary's eye, through the process where the sword is raised up as high as practical, and to the process where the sword is swung down from that held-up position to the adversary's head, with the results of observation studied carefully.

From the results of determination and discussion, the author has reached the following conclusion: As regards the angle change of thigh, the magnitude of this change is influenced by the degree of skillfulness of players, that is, the skilled group accomplishes the hitting motion without having to raise the thigh (lower limb) as high as the unskilled group and the semi-skilled group. This seems to be the result of the fact that players of the skilled group have mastered the best timing of motion and balance of body and are in a position to make the most rational hitting motion in precise response to the adversary's change of movement. As concerns the angle change of thigh, the general trend with the skilled group is that the magnitude of angle change is higher after the sword has been raised to the maximum height than before it has reached the height. This means that the players of this group keep their left thighs straight during the hitting motion. By contrast, the opposite trend is observed in the semi-skilled group. With the unskilled group, there is no fixed trend, large differences are

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seen in the left and the right thighs. The change of thigh angle is connected closely with the advancing motion of the right foot, the posture, and the transfer of body balance. With the skilled group, the advancing motion of right foot is made with concentrated force and coincides with the hitting motion. However, the difference of thigh angles between the left and the right legs is not very large, and there is observed an opposite relationship between the left and the right thighs, namely, the right thigh is bent when the left thigh is straight. In addition, the players of this group maintain their postures in perfect balance without involving unsteady change of the body's center of gravity, and they seem to change their postures rationally immediately after making the hitting motion so as to be readied for the next motion. By contrast, those of the unskilled group maintain their right thighs bent and, as a consequence, tend to have the body's center of gravity always at an advanced position. This prevent them from switching to the next motion very easily. When any of the players of the unskilled group is found to show the same trend as observed in those of the skilled group, such trend is not a rational one but a result of chance occurrence.