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Function of Upper Limbs in Regard to Hitting Operation in *Kendō*

By Shuji Fukumoto*

Research into the hitting Operation in *Kendō*, or the Japanese art of fencing (hereinafter referred to as "*Kendō*") has for the past several years been conducted from various aspects.

The following account sets forth the result of investigation into the hitting operation, which constitutes the essential action in *Kendō*, from the aspect of the motion of the upper limbs. Inquiries were made into the respective motions of the upper arms, forearms, and hands, which contribute to the raise of the hitting efficiency. Five persons experienced in *Kendō* and as many persons inexperienced in that art were chosen as the subjects of the investigation.

Results:

- (a) Whereas the persons experienced in *Kendō*, primarily, laid stress on the cooperative action of the forearms and wrists, the inexperienced persons dealt a blow by quickly lowering the upper arms themselves rather than making full use of the elbows and wrists.
- (b) After raising the "*shinai*" or bamboo sword overhead as high as possible, the experienced fencer quickly stretched his wrists and tightened the grasp of the hilt of the *shinai* (bamboo sword). Accordingly, at the time the blow was dealt, the grasp might be seen to be perfectly tight. Or the contrary, the inexperienced person swung the *shinai* downward while gradually tightening his grasp of the hilt.
- (c) When raising the *shinai* overhead, the experienced person pressed his elbows inward. The inexperienced person raised his *shinai* with his elbows getting wide apart and in this posture he hits a blow.

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Summary :

Generally speaking, the inexperienced, lacking the reaction of the upper part of their body accompanying the hitting operation, gave an irrational blow (i.e., hit with the use of their upper limbs alone). On the contrary, the experienced rationally utilized the reaction produced by the upper part of their body. Furthermore, when they dealt a blow with their *shinai* having been brought to its highest position, they hit, making full use of their grip on the hilt (i. e., the snap of the wrists).

It seemed that, in the case of a blow dealt by the experienced, the hitting efficiency was raised by means of the "translation" of the body and the rational motion of the upper limbs.