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Electromyographic Investigation of Muscular

Movements in *Kendō* (Part II)

—As Related To Applied Techniques—

By *Shuji Fukumoto**

1. Purpose

Acquisition of the hitting and thrusting techniques is important in the *Kendō* in that it is prerequisite for attaining proficiency in the martial art or making effective points in the hitting and thrusting offensives. In view of this, these techniques have been analyzed from different angles for long.

The purpose of this investigation was to electromyographically observe the intermuscular movements that occur in the fencers during their hitting and thrusting motions.

For this investigation, we specifically selected "*Do-Datostu*" where a fencer hits and thrusts his opponent in the torso with ordinary forward motions mixed with whirling, and more complicated "*Mengaeshi-Do-Datotsu*" where a fencer defends against a blow in the face and proceeds to hit and thrust his opponent in the torso in one act from among various applied techniques of the *Kendō*. Then, we electromyographically evaluated the intermuscular working of the extremities thoracica during the performance of these particular tricks.

2. Summary

This investigation proved that a skilled fencer performs more effectively by utilizing the intermuscular cooperation of the extremities thoracica during a chain of actions from defending against his opponent's "*Shinai*", or bamboo sword, or raising his "*Shinai*" overhead to hitting and thrusting his opponent in the torso. In particular, the bilaterally cooperative working of M. pronator teres and M. extensor carpi radialis was remarkably observed during the performance of "*Kaeshi*", a trick where defence and offence are performed in one act.

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This may support the traditional emphasis in the *Kendō* upon the necessity of dealing with that trick with left hand positioned at the center of the body and right hand relaxed.