Reaction time on fencing and karate high level athletes

[2]Oscar Martínez de Quel, [1]Francisco Saucedo, [1]Enrique López, [1]Manuel Sillero,
[1]Universidad Politécnica de Madrid.
[2]Universidad Complutense de Madrid.
Madrid (España)

Correspondence to:
manuelsillero@upm.esl

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Introduction

The great speed of the actions in combat sports makes very difficult to react quickly without mistakes. If the fighter had longer time to react, their reaction would be more accurate. This fact gives relevance to choice time reaction (CRT) studies on these kinds of sports.

The importance of the athletes' physical or psychological abilities varies depending on the sport played. According to the requirements of the speciality, players who reach the maximum level will be those who have the characteristics requested to compete on it. These abilities could be innate or "life-long" acquired by training.

Previous studies have not confirmed yet in which sports reaction time is more important. In addition, previous measurements should be considered with caution because some of them included movement time in the reaction time results (Martínez de Quel, 2003). An approach to get further knowledge about this subject, it is comparing the results of experts in two or more disciplines with unspecific tests, in which previous sport experience is not required in order to perform the test.

Material and method

After signing an informed consent, 54 athletes (17 women and 37 men), who constitute 100 % of the Spanish National Teams of Fencing and Karate took part in the study.

Reaction time was measured using the program SuperLab Pro 2.0 (Cedrus, San Pedro, CA, USA). The task was designed following previous similar protocols (Martínez de Quel, Saucedo and Lopez, 2005). We showed to the subject a black squared shape point-

ing up, down, right or left on a white background. Athletes had to answer by pressing a button corresponding to the direction of the squared shape. Every participant performed 4 blocks of 25 trials. The whole first block and the first trial of each block were excluded from the statistical analysis.

Two variables were calculated: reaction time (mean of 72 the trials) and efficiency in the test (number of correct responses divided by reaction time and multiplied by a constant to avoid decimals).

Using SPSS 9.0, after confirming the equality of variances with the Levene's test results were compared with a Student T-test. The comparison was realized separately between men and women of both disciplines. The T-test was carried out in every variable, except for efficiency between masculine groups, where Levene's test did not confirm the equality of variances.

Discussion and conclusions

Results are shown in table 1. In short, girls of the Spanish National Team of Fencing and Karate do not differ in a test of reaction time neither in reaction time (t =, 017; p> 0,05) nor in efficiency (t=1,332; p>, 05), whereas the boys of the National Team of Fencing are better than those of Karate both in reaction time (t=2,124; p <, 05) and in the efficiency in the test (t=2,969; p <, 05) that take in count the number of mistakes.

The results of this study allow us to know something more about the variables related to the performance in combat sports and they will be useful as a reference for training, detection and selection of talents. The practical consequence of this study is that, for group of young athletes, a subject with a good reaction time will be more interesting for fencing than for karate.

References

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Table 1. Reaction time and efficiency in the test of fencing and karate athletes

		Males			Females		
	karate or fencing athletes	N	Mean	Standard deviation	N	Mean	Standard deviation
efficiency	fencing	16	267,95	19,49	9	237,5	12,84
	karate	21	240,61	35,79	8	227,58	17,76
reaction time (ms)	fencing	16	356,49	38,5	9	397,11	34,11
	karate	21	399	72,5	8	396,84	30,23